The relationship between personality and recidivism in young offenders.

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THE RELATIONSHIP BETWEEN PERSONALITY AND RECIDIVISM IN YOUNG OFFENDERS

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Preliminary Note

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Thank you for your letter of 1 May 1985. Please note that the Home Office has no objections to Dr McEwan's thesis being copied.

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CONTENTS

Abstract

In studies of recidivism neither the predictive ability of personality variables nor the efficacy of penal sentences has been demonstrated. The most promising findings for each question, however, have come from studies which have considered between-subjects differences in response. A recent example of this is seen in a detention centre study (McGurk et al., 1981) in which one personality type reconvicted to a significantly lesser extent than other types. The present research sought to extend this work and examine the reconviction rates of different personality types when released from the three forms of custodial penal sentence available for young offenders before the Criminal Justice Act (1982).

A sample of 344 subjects were administered three objective personality tests and a cluster analysis of their responses across tests led to the adoption of a five cluster solution. The stability of the cluster solution was demonstrated and the five personality types were followed-up on release from each sentence. High reconviction rates were reported across sentences and there were no across-type differences for any sentence on a range of indices of recidivism.

The personality types identified were consistent with the general categories of young offender type resulting from Warren's (1971) cross-tabulation of different classification models. Further, a sub-division in Warren's category of neurotic offenders reconciles the current findings with those of McGurk et al. (1981) and a later borstal study reporting positive results (McGurk et al., 1983). It is proposed from the present research, which included a neurotic acting-out group, that the critical feature of the low reconvicting group in the other studies is the neurotic withdrawn nature of their personality. It is proposed further that neurotic withdrawn offenders during incarceration become less exposed to the influence of 'criminalization', an effect important in maintaining criminal behaviour. More general findings are quoted in support of this and recommendations are made for future studies.

CHAPTER ONE

INTRODUCTION

The Definition of Criminality

The first problem facing any study of criminality is the definition of the phenomenon to be studied. This question has occupied the attention of interested social scientists for decades, but remains a particularly thorny issue requiring attention prior to the analysis of behaviour described as criminal. One simple solution would be to confine the subject matter to those individuals who have been convicted of violations of criminal law. Acceptance of such a definition would, however, omit from consideration both those who have escaped detection and, significantly, those who have been apprehended but have been excluded from prosecution by the range of selection decisions which are an integral aspect of the process of criminal law. The crimes committed by both groups help constitute the 'dark area', a concept which refers to those crimes committed but not recorded in official statistics.

The extent of the 'dark area' is shown by studies of victims (Ennis, 1967) and, especially, by the self-reporting of offenders. Several reviews of self-report studies have been published and Hood and Sparks (1970) conclude:

> "Both in the United States and England it has been suggested that by the age of eighteen somewhere between 10 and 20 per cent of the male population will have been convicted by a court of a criminal offence ..... Self-report studies indicate that they represent on average only a quarter of those who have actually committed these offences." (p. 47).

This is supported by the results of studies conducted in Scandinavia (Elmhorn, 1965; Christie et al., 1965) and by the comprehensive study conducted later in this country by Belson (1975).

The fact that only a small group of those who commit offences are convicted by courts of law would be less critical if those convicted were a representative sample of a general class of law-breakers. The balance of available evidence,though,weighs strongly against this conclusion. First, the success rates of police in clearing up crimes - i.e. leading to a court verdict of guilty - vary as a function of the nature of the offence. In Britain in the case of murder 80 per cent of the crimes committed are cleared up whereas in the case of theft from unattended vehicles the equivalent figure drops to as little as 20 per cent (Walker, 1971). Second, crimes against organizations, such as those committed by employees, are less likely to be reported than are crimes against private individuals. Organizations are less sensitive to the existence of a criminal act committed by a employee but, also, on its discovery are less likely to report it to the police. The real significance of this lies in the fact that those responsible for such offences are typically 'middle-class' or 'white-collar' criminals who are thus under-represented in any sample of convicted criminals (Box, 1971).

To proceed beyond the specific example of 'white-collar' crime, evidence suggests that offenders' background characteristics influence to a high degree their likelihood of passing through the different levels of the process, from detection to successful prosecution, by which an individual becomes convicted.

Belson's (1975) research in this country demonstrates the influence of self-reported thieves' background characteristics on the likelihood of their detection by the authorities. The subjects were divided into four groups according to paternal occupation and it was found that the percentage

caught was disproportionately high for boys with unskilled fathers and disproportionately low for those with professional and executive fathers. It was discovered also that the better-educated subjects were less likely to be caught. Similar findings of bias emerge from the next stage of the process, the actual prosecution of apprehended offenders.

Robin (1970), in a study of a private detective agency used by several American business organizations, discovered that while charges were brought against only one third of the executives involved in illegal conduct two-thirds of the cleaners found to behave illegally were charged. In a study of private complainants Black and Reiss (1970) report that they are more likely to press charges when the suspect is black or poor than when he is white or middle-class.

There are many published reports on both sides of the Atlantic about the role of the police in this stage of the criminal law process and, again, the results demonstrate a systematic bias against adolescent male, black (in the case of the USA), working-class suspects. Females at all ages are more likely than males to receive cautions as an alternative to prosecution (Walker, 1965). Young white juveniles in the United States are more likely to be cautioned than their black counterparts (Wilson, 1968) and in the case of social class both Gold (1966) and Goldman (1963) report that middle-class children are less likely than working-class children to be prosecuted after being apprehended by police. These and other findings suggest that police authorities respond to certain cues associated with potential suspects. These cues include both the perceived attitude of the suspect and the stereotypes (Lippmann, 1922) invoked by physical appearance. Piliavin and Briar (1964) and Werner et al. (1975) report that subjects classed as unco-operative were significantly more likely to be arrested than suspects who were seen to be polite, responsive to questioning and

generally compliant. Equivalent findings emerge from a study by Sullivan and Siegel (1972) who used an information-board exercise to analyse the specific factors that police officers would take into account in deciding how to deal with a juvenile found to be drunk and disorderly on the street. It was discovered that over seventy-five per cent of the police in the sample would make their decision after selecting the information item 'attitude of offender'. From this it is reasonable to conclude, as Box (1971) does, that middle-class suspects are better equipped than working-class suspects to present themselves favourably and thus create the desired impression on police authorities.

Together with assessments based on the attitude of the suspect the police invoke stereotypes based on visual cues. From Piliavin and Briar (1964) the list of cues include age, group affiliations, race, grooming and dress such that older juveniles, members of known delinquent groups, negroes and youths with black leather jackets are all more likely to invoke an official response by police.

In the final stage of the process by which actual offenders become represented in official crime statistics their perception by others is again of significance. It has been demonstrated, for example, in simulated jury exercises that experimental subjects assign lesser degrees of punishment to physically attractive defendants (Efran, 1974). The question of sentencing disparities in the real situation has received attention and, in common with the earlier stages in the process, male working-class offenders are likely to suffer from a bias in sentencing practice (Hood, 1962). Such bias has been found also in the USA to operate against blacks (Cameron, 1964). These studies have naturally focussed on the disparities between sentences given to defendants found to be guilty, but it does not appear unrealistic to infer from this the influence of defendants' personal attributes in the actual finding of innocence or guilt.

It is apparent therefore that the crimes committed by many offenders do not become represented in official criminal statistics. The likelihood, in fact, of any offender progressing through the various filtering mechanisms of the legal process which operate from commission of the illegal act to a court finding of guilt will be a function of the offence committed, the nature of the complainant and, significantly, a range of superficial, social and demographic characteristics of the transgressor. Moreover, these selection factors do not produce a reduced but representative sample of a general class of offenders. On the contrary, they lead to a highly biased sample of offenders being found guilty in court.

Criminality and Psychological Investigation

The fact that official crime statistics represent those offences committed by a biased sample of offenders has serious implications for research into criminality, especially for attempts to compare offenders with non-offender control groups. It is certainly convenient to study convicted offenders and particularly those incarcerated for their offences but the data gleaned from such a literally captive population are inevitably incomplete if not distorted. Further, in view of the process by which convicted offenders are selected from the general population of offenders, questions about the offending status of any control group must be raised.

Nevertheless, the research strategy of comparing offenders and non-offenders has remained prevalent in the study of criminality. This is exemplified in the host of attempts to test the predictions from the most celebrated psychological theory of criminality, that of Eysenck (1964, 1970, 1977). The basic tenets of this theory are provided by the physiologically determined higher-order personality factors of extraversion and neuroticism.

Extraversion, according to the theory, results from low cortical arousal while neuroticism is founded in the properties of the autonomic nervous system. Eysenck argues that extraverts condition less well than introverts - those with high cortical arousal - and thus fail to develop the necessary social responses which inhibit the universally present propensity to criminal behaviour. This unchecked propensity for criminal behaviour is reinforced by a high degree of neuroticism which provides the drive necessary for an individual to pursue his antisocial urges. In addition to extraversion and neuroticism Eysenck (1970) stated later that a third factor, psychoticism, was related to criminal behaviour. The causal significance of this third factor remains less defined than that suggested for extraversion and neuroticism.

Typical examples of studies designed to test predictions from this theory are those of Hoghughi and Forrest (1970), Cochrane (1974) and Wilson and MacLean (1974). Each study compared incarcerated offenders with non-criminal control groups without regard for the selective sequence of events by which the experimental and control subjects became defined. The neglect of this question by these and other studies could serve to explain the equivocation of findings from attempts to test predictions from the theory. It is already recognised, however, that future studies should proceed beyond the examination of the predicted associations between criminality and the postulated personality factors to examine more fundamental questions such as the interaction between conditionability and social milieu (Raine and Venables, 1981) and therefore the explanation, rather than the fact, of the predicted associations (Rushton and Chrisjohn, 1981).

There have been efforts to counter the methodological problem of the definition of offender and control groups by conducting studies based on subjects' self-reports. This research has been confined to non-adult subjects (eg Allsopp and Feldman, 1975; Rushton and Chrisjohn, 1981) and represents a minor proportion of attempts to test Eysenck's theory.

Self-report studies have their own set of methodological problems (Hood and Sparks, 1970) but they do come to terms with the critical question of sampling bias. This question, although important in all psychological investigation, assumes extra significance in studies of criminality since there is both the problem of the definition of criminality and the issue of the status of offender and control samples.

Studies of incarcerated criminal populations which do not involve non-offender control samples avoid many of these problems. In the examination of the effect of long-term imprisonment on offenders (Cohen and Taylor, 1972; Bolton et al. 1976) the question of representative sampling is reduced to the consideration that the experimental sample reflects the general population of offenders serving sentences of long-term imprisonment. Similarly it is tenable to examine possible differences in the psychological attributes of those offenders who reconvict and those who do not reconvict without paying undue attention to the selective processes by which each group became offenders. It is true that the population of convicted incarcerated offenders represents a small fraction of law-breakers but in the examples quoted the focus of psychological interest remains distinct from the series of selection decisions by which offenders became defined. This interest is limited in the former example to the effect of prolonged institutionalization and in the latter to the psychological characteristics of those who reoffend after release relative to those who do not reoffend.

It could be argued against the latter example that the selection bias in the legal machinery would contaminate such a comparison. However, the common experience of both previous conviction and incarceration does much to bestow upon the subjects equivalent status at the various stages from discovery to conviction should they reoffend (Hood and Sparks, 1970).

The Nature and Definition of Personality

The study of personality can be traced back to the work of the Greek physician, Hippocrates, 400 years BC. He advocated four temperaments based on the four humours of the body, which, in turn, were founded on the four cosmic elements proposed by the Greek philosopher Empedocles about fifty years earlier. If the field is restricted to studies based on controlled observation it dates from the attempts of European physicians of the last century, such as Charcot, to understand and treat maladjusted individuals.

These physicians established the early traditions of personality theory and were followed, notably, by the work of Freud and his contemporaries. As a result personality theory tended to become more intuitive and speculative and, accordingly, the study of personality became distinguished from other branches of psychology which were establishing the base of the experimental study of behaviour in the laboratory.

Through time the more rigorous methodology of experimental psychology has been incorporated into the study of personality and today serves to illustrate one extreme of the spectrum of perspectives in this area, the other being the traditional approach of 'armchair theorists' such as the neo-Freudians. The experimental base leads to specific theories which relate to a fixed set of behavioural responses and, most significantly, which are capable of generating predictions. The intuitive or philosophical base produces theories which are general, tend to refer to all responses across all situations and are often incapable of producing testable hypotheses. Cattell (1963) has referred to these extremes as a continuum with Skinner at one pole and philosophers at the other.

From these polarities and the obvious intermediate positions on the continuum Allport (1937) was able to compile over fifty definitions of

the term 'personality'. Despite this range there is a common essence in the attempt to explain behaviour and the important question of individual differences. Thus most definitions imply that the term personality relates to a hypothetical internal core which underlies the individuality of human beings. But beyond this shared focus it is recognised that definitions will reflect the particular set of concepts inherent in different theories:

> ".....we mean simply that the way in which a given individual will define personality will depend completely upon his particular theoretical preference. Thus if the theory places heavy emphasis upon uniqueness and the organized, unified qualities of behaviour, it is natural that the definition of personality will include uniqueness and organization as important attributes of personality. Once the individual has created or adopted a given theory of personality, his definition of personality will be rather clearly implied by the theory." (Hall and Lindzey, 1970,p.8-9)

The methods and concepts to be adopted in the current study are founded on the scientific study of personality through the analysis of responses to objective psychometric instruments. This runs counter to the ideographic perspective which stresses the uniqueness of personality and which, although tenable in clinical study, is not productive of testable research hypotheses. In contrast, the analysis of responses to objective personality tests, albeit a necessarily limited series of responses, does facilitate generalizations over individual subjects and the formulation of testable theory.

The Definition and Nature of Recidivism

Recidivism refers to some measure of renewed criminal behaviour following contact with the criminal justice system. As such it is the

dependent variable employed in the vast majority of studies designed to assess the corrective efficacy of custodial and non-custodial sentences. In Britain the term is most often defined as the presence of a recorded reconviction within a specified period of time (Brody, 1975) whereas in American studies it is frequently interpreted as meaning a custodial reconviction (Reppucci and Clingempeel, 1978).

Irrespective of the definition adopted Walker's (1971) delineation of the 'absolute efficacy' of penal measures should be observed. This term refers to the extent by which the percentage of offenders who do not reconvict exceeds the percentage who would not have reconvicted whether they had served the sentence or not. However it has been argued by Tittle (1974) that absolute efficacy is a delusion and that reconviction rates are not a measure of correction, but of other factors such as fear of apprehension or the influence of family pressures.

Reconviction rates as a measure of corrective efficacy have been criticised also by those who argue for a rehabilitative effect in certain penal measures. In this instance the index of reconviction is seen as inappropriate in assessing possible improvements in subjects' personal and social adjustment. It is held that subsequent reconviction does not necessarily exclude personal improvements by subjects as a result of treatment intervention. Research has been conducted into this question of alternative measures of assessing the outcome of sentences and the results of independent studies support a high degree of correlation between recidivism and indices of personal and social adjustment (Scott, 1964; Hood, 1966).

Despite Walker's conceptual distinction between efficacy and 'absolute efficacy' and the warnings expressed by Tittle (1974) reconviction rates remain the best measure of assessing the efficacy of penal sentences. It might be interpreted that acceptance of this distinction and the expressed cautions would suggest that reconviction rates are not measures

of penal efficacy but of a host of other variables. In the analysis of the comparative efficacy of different sentences, however, it is possible to control for the influence of these extraneous variables. This can be achieved for the critical criminological influences by rigorous matching of the subjects in the different samples on the variables of age, type of offence, previous convictions and other penal characteristics. Psychological and social variables of the nature described by Tittle cannot be rigorously controlled by matching but can be allowed for by the precepts of a randomized experimental design (Edwards, 1950; Keppel, 1973). Nevertheless, extreme caution must still be exercised in the interpretation of published reconviction statistics. Independent follow-up studies of subjects discharged from custodial or non-custodial treatments abound (McClintock, 1961; Gibbens, 1963; Banks, 1965; Le Clair, 1978; Lee and Olejnick, 1981) but there is a dearth of controlled experimental investigation comparing sentences. Thus the findings from different studies should be treated with caution as it is not only possible that the samples were drawn from different offender sub-populations but that the exact measures of recidivism applied were different.

In those few studies comparing different sentences the results are equivocal, but across sentences certain variables have been found consistently to relate to recidivism per se. Wilkins (1958) found no differences in reconviction over the same period between a group of offenders placed on probation and a group of individually matched controls most of whom received custodial sentences. In an American study Babst and Mannering (1964) followed up over 5,000 adult male offenders and compared the reconviction rates of those placed on probation, those paroled and those incarcerated. The authors controlled for type of current offence, previous convictions and marital status, the factors found to be most

predictive of recidivism, and discovered that the success rate of probation was equivalent to that of custody for recidivists. For first offenders though probation was significantly better than custody. In contrast, Hammond (1969) in a review of the range of court disposals available in this country found probation to be the least effective sentence, especially with first offenders.

The results of these studies serve to illustrate the problems involved in considering the relative efficacy of different sentences. However these findings and the results of studies in which recidivism has served as the independent variable have contributed to the identification of critical variables found to relate to recidivism. Established among those variables are the number of previous convictions (Payne, McCabe and Walker, 1974; Brown, D'Agistino and Craddick, 1978), age (Hood and Sparks, 1970; Gendrau, Madden and Leipciger, 1979) and sex (Walker, 1969; McClintock and Avison, 1968) of the offender. Less established, but variables for which positive results have been found are family configuration variables (Virkkunen, 1976; Wiesnet, 1978; Zarb, 1978), the nature of the offence committed (Walker, 1969; White, Soo and Andriano, 1977) and, for older offenders, vocational and employment factors (Rudnik, 1978; Soothill and Holmes, 1981).

These variables have been incorporated in different combinations into mathematical formulae designed to predict an individual's chances of becoming or remaining criminal. Such prediction tables had a phase of popularity in America (Ohlin, 1951; Glueck and Glueck, 1960) but it is now recognised that they have limited application "because it is impossible, in criminology, to collect and incorporate measures of all the influences which contribute to any behavioural outcome" (Brody, 1976, p. 12). They continue, however, to be advanced periodically as being relevant for the prediction of recidivism (Schumacher, 1974; Harris and Moitra, 1978).

It has been stated that demographic and criminological variables have been found consistently to relate to recidivism. Research activity has been directed also to the exploration of the relationship between psychological variables and recidivism. The results of this activity, from the very first attempts to relate recidivism to intelligence (Calhoun, 1928; Frank, 1931), are more equivocal than for demographic or criminological variables.

CHAPTER TWO

THE RELATIONSHIP BETWEEN PERSONALITY AND RECIDIVISM

Historical Review

Early interest in the relationship between psychological variables and recidivism was confined almost exclusively to the concept of intelligence. The results of Frank (1931), Glueck (1935) and Shulman (1950) suggested that recidivism was related to low intelligence; those of Calhoun (1928), Hill (1936) and Hartmann (1940) suggested the converse, that recidivists were more intelligent than non-recidivists. Lane and Witty (1935), Kirkpatrick (1937) and Merrill (1947) did not find any significant relationship between intelligence and recidivism. In reviews of the literature both Merrill (1947) and Woodward (1955) conclude that no consistent relationships have been established. In view of these conclusions Franks (1956), in a seminal article, recommended that it might be more profitable to attempt to relate recidivism to "some other fundamental dimension of personality" (p. 192). This recommendation followed recent developments in America in attempting to relate personality to recidivism. Freeman and Mason (1952) argued for the construction of a recidivist key from the comparative analysis of responses of recidivists and non-recidivists to the Minnesota Multiphasic Personality Inventory (MMPI : Hathaway and McKinley, 1951). Dunham (1954), in a range of systematic comparisons between these groups found recidivists to score higher on the Depression and Psychopathic Deviate scales of the MMPI.

As fundamental dimensions of personality Franks considered the factors of neuroticism, extraversion-introversion and psychoticism identified by Eysenck (1947, 1952, 1953) from a series of factor analytic studies. Franks proceeded to discuss the likely nature of the relationship between extraversion-introversion and recidivism and with considerable insight argued

that any such relationship would be complex, with recidivists being either extraverted or introverted in personality. He predicted that introverted recidivists who had conditioned well would come from criminogenic environments whereas for extraverted recidivists who formed conditioned responses poorly this would not be the case. He described the latter group as psychopaths who would be constitutionally unable to learn and thus for whom environmental influences would be unimportant. Extreme members of this group could be described as psychopaths but Franks would appear to be over-inclusive in his categorization. It seems more plausible that this group embraces individuals of varying degrees of high cortical inhibition and, consequently, varying degrees of the constitutional ability to learn.

In an immediate, but somewhat crude, pilot examination of Franks' hypothesis Robin (1957) compared the immediate personal environments of extraverted and introverted delinquents. He failed to find any differences between the groups in either current or early personal environmental influences. In a more sophisticated study Raine and Venables (1981) support the general nature of the relationship between personality and recidivism as adumbrated by Franks by demonstrating an interaction between conditionability and immediate environment in the acquisition of pro-social responses.

Franks has served to direct much subsequent interest in the relation between personality and recidivism to the dimensions of extraversion-introversion and neuroticism. Eysenck's (1958, 1964) later suggestion that criminals, compared to non-criminals, should score highly on these variables has acted to reinforce this interest in the more severely criminal, the recidivist.

In a comparison between adult first-offenders and recidivists Bartholomew (1959) found that the latter group scored significantly higher on extraversion, but that there was no significant difference between the scores of either group and those of a normative sample from the general population. Bartholomew reasoned that the first-offenders could be underscoring

on extraversion due to the effect of the unnatural environment of the prison where they had been referred for medico-psychological assessment. He did discover, however, that recidivists recorded significantly higher scores than either of the other groups on the neuroticism scale of the Maudsley Personality Inventory (MPI : Eysenck, 1959).

The suggestion that some less experienced criminal groups could be underscoring on extraversion due to the test-taking situation receives possible support from Field's (1959) study of young recidivists, older recidivists and a non-criminal control group of industrial apprentices. It was found, contrary to expectation, that of the three samples the apprentices scored highest on extraversion. Field suggested two competing explanations for this finding. First, that the differences were real and that there were personality differences between delinquents and non-delinquents, though not in the predicted direction. Second, following Bartholomew's suggestion, that the natural responses of incarcerated delinquents were suppressed by the test-taking situation.

Bartholomew's demonstration of a positive relationship between neuroticism and recidivism is supported by the later results of Fitch (1962). This author was able to demonstrate a relationship between neuroticism and recidivism but was unable to find evidence of an association between extraversion and recidivism.

In a novel attempt to test the relationship between extraversion and recidivism Little (1963) argued that if an association were to be established there should be demonstration of an empirical relationship between the mean extraversion score of inmates and the recidivism rate for their particular institutions. Little tested this hypothesis using a shortened version of the MPI with young male offenders serving sentences in different borstals. Despite widely differing probabilities of reconviction for each institution there were no differences between the samples on extraversion. The results are taken by the author to confirm the null

hypothesis, that there is no association between extraversion and recidivism.

Price (1968) administered the MPI to a sample of Borstal girls and reports significantly higher scores than a normative sample of controls on both extraversion and neuroticism. In relating the scores to recidivism he found that reconvicted girls had slightly higher neuroticism scores, but that the difference was not statistically significant. There was no difference between recidivists and non-recidivists on the extraversion scale.

In a comprehensive study aimed at comparing first-sentence adult offenders with 'primary recidivists' - men convicted for the second time - Blackler (1968) obtained information across five different prisons on over six hundred men. This information was based on a schedule used previously by Taylor (1957, 1960) and included a section on intelligence and personality. The MPI was administered as part of the personality assessment and the results support earlier findings regarding the relationship between the factors of extraversion and neuroticism and recidivism. The primary recidivists scored significantly higher than the first-sentence offenders on neuroticism and marginally higher on extraversion but the latter finding was non-significant. Both groups scored considerably higher than non-criminal normals on neuroticism but within normal limits for extraversion.

A further personality questionnaire, the Eysenck Personality Inventory (EPI : Eysenck and Eysenck, 1968, 1969) has been constructed, standardized and validated to update the MPI. The new version measured the same fundamental dimensions of personality and has been equally popular in attempted discriminations between recidivists and non-recidivists. Eysenck and Eysenck (1974) report, contrary to previous results with the MPI, a positive relationship between extraversion and recidivism in a sample of Borstal boys. They discovered also that recidivists scored higher than non-recidivists on neuroticism and the third factor of psychoticism, but that these differences were not statistically significant. The authors comment, however, that the small numbers of non-recidivists in the sample

make the achievement of statistical significance difficult and, therefore, it would be premature to dismiss the contribution of neuroticism and psychoticism to recidivism.

Chockalingham (1974) administered the EPI to sample groups in India to test the hypothesis that recidivists would be more extraverted than non-recidivists. The null hypothesis could not be rejected and Chockalingham, following Bartholomew (1959) and Field (1959), alluded to the possible difficulty in eliciting true responses from respondents incarcerated in penal environments. Also in India, Singh (1974) compared one hundred and fifty recidivists with seven hundred non-recidivists on their responses to the extraversion and neuroticism scales of the EPI. These groups were matched for age and Singh found no differences between them on extraversion, but did discover that recidivists scored significantly higher than the non-recidivists on the neuroticism scale.

The series of results across samples suggests a possible relationship between MPI and EPI neuroticism and recidivism but no such relationship is indicated between extraversion and recidivism. It could be countered that attempts to test the latter relationship have neglected Franks' (1956) interpretation that the interaction between conditionability and social milieu would mean that recidivists would be characterized by either high or low scores on extraversion. Therefore, according to this interpretation, measures of central tendency such as sample means are an insufficient test of the postulated relationship. This line of argument, it should be stressed, dates from Franks and not from Eysenck's enunciation of the association between extraversion and criminality although on different occasions the latter has referred to the possibility of personality differences between different types of criminals (Eysenck, 1964, 1970).

Little (1963) tested Franks' suggestion of a bimodal distribution of delinquents' scores on extraversion with subjects being concentrated at the extreme polarities of the scale. He argued that if this were the case

it would be demonstrated by a higher standard deviation for the mean in delinquent than in non-delinquent control samples. His results indicated that delinquents have a narrower spread of scores than non-delinquents on extraversion, thus refuting the prediction from Franks.

Another criticism which might be levelled at the majority of the studies quoted is that they have examined extraversion and neuroticism independent of the other factor. They are orthogonal in the general population but at high levels of neuroticism negative correlations appear (Eysenck and Eysenck, 1970) so that samples with high neuroticism scores should not be compared on extraversion with samples having median range scores on neuroticism. Such a comparison would serve to artificially suppress the scores of the former group on extraversion. This would occur only from one sample recording very high scores on neuroticism and may be readily allowed for by an inspection of measures of central tendency and dispersion of scores on the scale. This caution should be observed but it would appear insufficient to explain the absence of a reported positive relationship, with the exception of Bartholomew (1959) and Eysenck and Eysenck (1974), between extraversion and recidivism.

Similarly it would be facile to explain the absence of a consistent positive relationship between these variables on the artificial effect of penal environments in suppressing extraversion scores. There is some limited evidence to suggest that 'inside scores' on the EPI may differ from 'outside scores' (Hardwick, 1972) but this can only be of relevance for certain samples in the results discussed. It could be argued that for some recidivists with a history of custodial sentences the effect of an 'inside set' is negligible. Moreover there is evidence that young delinquents serving their first custodial sentence soon adapt even to the most punitive and militaristic regimes (McEwan, 1981). In a cross-sectional design subjects aged fourteen but under seventeen years of age demonstrated high levels of stress and unease

after one week in a junior detention centre. After two weeks these feelings had almost disappeared as they had begun to adapt to the regime, to know what was expected of them and to form relationships with certain members of staff and other inmates. Before the end of the third week the early feelings of anxiety had dissipated entirely. The critical consideration for eliciting true responses to objective personality tests from those subjects would have been the timing of the test administration relative to their arrival at the institution. This and equivalent consideration of other test-taking situational variables should, however, always be at the forefront of the experimenter's concern for the reliability of the measures to be obtained (Nathan, 1967; Lanyon and Goodstein, 1971). For example, beyond the general question of reliability which must obtain for any test administration, the instructions of personality tests administered in penal environments should be designed to counter any likely effect of an 'inside set'.

A final point concerning the association between extraversion and recidivism relates to the contention of Burgess (1972) that separate testing of subjects' scores on extraversion and neuroticism does not constitute an adequate test of Eysenck's theory. Burgess argued that what should be examined is the relative presence of prisoners and controls - or recidivists and non-recidivists - in the quadrants formed by the orthogonal relationship between extraversion and neuroticism. He demonstrated that in several studies where extraversion and neuroticism did not distinguish sufficiently between criminals and non-criminals a variable formed by their combination did discriminate.

Without discussing the relevance of quadrant analysis for tests of Eysenck's theory Price (1968) did examine the relative proportion in the quadrants of recidivists and non-recidivists from a sample of Borstal girls. There was no significant difference in probability of reconviction between the groups. After Burgess, Eysenck and Eysenck (1974) computed the combined variable from extraversion and neuroticism but found this did not add to the

discriminative ability of extraversion alone in distinguishing between recidivists and non-recidivists in a sample of Borstal boys.

While the majority of studies in this country have used Eysenck's tests in attempted discriminations between recidivists and non-recidivists American research has in the main concentrated on the MMPI. This test, first devised by Hathaway and McKinley in 1943 (later revised in 1951 and 1967) is the premier instrument in clinical assessment and personality research in America. The individual form of the test consists of 550 card-sort items which cover twenty-six general areas and which are scored to give a profile of four validity scales and nine standard clinical scales. In addition many other scales have been developed by independent investigators (Welsh, 1956; Giedt and Downing, 1961) from the original pool of MMPI items.

Research findings from the MMPI on the relationship between personality and recidivism are equivocal. Some investigators have distinguished between recidivists and non-recidivists on different scales (Wirt, 1967; McKay and Richardson, 1973) but the only consistent finding across studies reporting positive results concerns the Psychopathic Deviate scale. Other findings refute any postulated relationships and both Smith and Lanyon (1968) and Mack (1969) conclude that the MMPI used by itself does not make any contribution to the identification of recidivists. Christensen and Le Unes (1974) report that types of offenders could be distinguished on the basis of their MMPI responses but not recidivists and non-recidivists.

The pattern of results emerging from studies with the MMPI in America and the MPI and its' derivatives in this country is supported further by the findings of research utilizing different instruments for the assessment of personality. Blackler (1968) compared 'primary recidivists' and first-sentence offenders on a modified version of the Californian Authoritarian Attitude Scale (Adorno et al, 1950) and failed to discover any differences. Inger (1976) compared recidivists and non-recidivists on their perceived locus of control and again the null hypothesis could not be rejected.

Francis (1970) examined recidivists' and non-recidivists' scores on the sixteen primary factors and the second-order factors of anxiety and extraversion of the 16 Personality Factor Questionnaire (16PF : Cattell, Saunders and Stice, 1957) but could not discrimate between the groups. Nicholson (1977) did find the bi-polar 16PF Factors of G (expedient - conscientious) and M (practical - imaginative) to assist the discrimination of recidivists and non-recidivists and McGurk et al. (1978) report that on Factors G and L (trusting - suspicious) there are statistically significant differences in the scores of the groups.

The general conclusion which derives from the spectrum of attempts to test the relationship between personality and recidivism is that there has been a failure to demonstrate a consistent relationship between any measure of personality and recidivism. The higher-order personality dimension of neuroticism from the work of Eysenck and the Psychopathic Deviate scale of the MMPI are those factors which have been most closely associated with recidivism but in the case of the latter scale this association is likely to reflect the criminal status of many of the subjects in the clinical validation group. Other studies, however, have failed to demonstrate these associations and thus the relationships are by no means conclusive. It could be argued, but tenuously, that the conflicting results are attributable to differences between the respective samples on critical variables which have been found to relate to scores on objective personality tests. Age (Fitch, 1962), sex (Price, 1968) and socio-economic status (Eysenck and Eysenck, 1969) have all been demonstrated to influence subjects' scores on those factors considered by Eysenck to account for much of the variance of personality. The differential operation of these variables could explain minor differences in the reported results, but if a relationship between personality and recidivism is to be established it is a precondition that the relationship will hold across different samples.

In the attempt to establish such a relation the methodological practice of directly comparing recidivists and non-recidivists on independent scales has not proved fruitful. This practice has the inherent problem that the independent scales are abstracted from and considered in isolation to the total pattern of personality. Attempts to overcome this problem have led to quadrant analysis (Price, 1968; Eysenck and Eysenck, 1974) and the analysis of second-order factors derived from the primary dimensions of personality (Francis, 1970) but these methods have proved to be no more discriminative between recidivists and non-recidivists.

One specific feature of a likely relationship between personality and recidivism has received insufficient attention and it will be argued that an equivalent lack of attention could also assist explanation of the plethora of negative results in investigations of the efficacy of different treatment and training initiatives with offenders. This feature refers to the possibility of interaction effects between types of offender and regime such that different types of offender may respond differently to the same treatment.

The Efficacy of Treatment Methods with Offenders

Today the sentencing agent matches the sentence not to the crime but to a complex pattern of interrelated pieces of information about the offender (Devlin, 1970) and there is extensive evidence of disparities between sentences passed in different courts or by different sentencing agents for similar cases (Hall Williams, 1965; Hood, 1962, 1972). These disparities have been investigated and the results indicate the contribution to the decision-making process of personal factors of the sentencing agents (Green, 1961; Hogarth, 1971). It is therefore a complex task to assess the effectiveness of any sentence given the necessary prior consideration of its aim.

By way of relief from the complexities of this problem the goal of reformers and administrators has been to effect change in the behaviour of offenders. To circumvent debate about the respective influences of deterrence and reformation this change has been referred to as 'correction' and is measured by subjects' post-release criminal behaviour. Evaluative research has examined the effects on post-release behaviour of differential periods of incarceration, custodial versus non-custodial sentences, a host of experimental initiatives and, finally, putative therapeutic programmes in institutions.

To investigate the effect of length of incarceration on future behaviour Hammond and Chayen (1963) studied three pairs of samples of adult prisoners, the members of each pair being differentiated by sentence length. No differences were found between the failure rates of any of the pairs. Banks (1964) examined the reconviction rates of young prisoners serving sentences of between three months and one year and was unable to discover a relationship between sentence length and recidivism. In America Jaman (1968a) claimed to demonstrate that the practice of keeping men in prison for longer increased the probability of recidivism. He compared offenders convicted for robbery according to whether they served less or more than the median time in prison for that offence. On a two-year follow up those released earlier did better on several indices of failure. These results were open to the obvious criticism that those released earlier represented better risks. To counter this Jaman (1968b) extended his analysis to another sample and included control matching on the variables of age, ethnic group and type of parole supervision received but, curiously, made no mention of matching on criminological data. Again there was a more favourable outcome for those who had served less than the median period of imprisonment, but in view of the absence of control matching on criminological variables the result should be viewed with circumspection.

In an earlier study Mueller (1965) examined the effects of early release on parole and controlled for differences between samples by the use of statistical prediction tables. In a three-year follow-up there were no differences between early releases and regular releases. Across studies the evidence available on the significance of the period of imprisonment relates to a limited range of sentence lengths but there is no suggestion that longer sentence lengths in themselves reduce the probability of recidivism.

Research comparing custodial and non-custodial sentences has tended to focus on forms of probationary measures to the virtual exclusion of other non-custodial penalties. Wilkins (1958) reports a matched-pairs design in which ninety-seven subjects from a court known to make frequent use of probation were compared to a sample convicted in a second court. The subjects were matched on age, offence and criminal history and when they were followed-up it was found that the reconviction rates for each sample were equivalent despite the fact that in the first court twice as many offenders were placed on probation. The results are taken to suggest that probation could be used more as an alternative to custody without fear of increased recidivism.

Pond (1970) describes the results of the Los Angeles Community Delinquency Control Project involving male subjects of between thirteen and eighteen years of age. Subjects assigned to the experimental group were paroled immediately under conditions of close supervision founded on a rehabilitative model. The supervision involved individual and family counselling, constructive recreation and community involvement. These subjects were compared on parole outcome with a control group who were paroled under normal conditions having served the first part of their sentence in an institution. There were slight differences in outcome between the groups but they were not statistically significant.

One study comparing probation to incarceration which has yielded positive results in that of Kraus (1974) in Australia. Over two hundred probationers aged between eight and eighteen were matched with a sample sent to institutions on age and an impressive listing of those criminological variables found to be predictive of later behaviour. The reconviction rate of the probation sample was significantly lower and this result held for first offenders, recidivists and all types of offence with the exception of taking and driving away.

Positive results in favour of probation are presented also by Empey and Erickson (1972) in their report on the Provo Experiment in Utah. In this study the researchers were able to make changes in judges' original disposal decisions and the effect on later behaviour of three 'experimental' conditions involving four subject samples was examined. The first sample was sent to an institution; the second received conventional probation sentences; the third group were those for whom custodial sentences were originally designated by judges but who were allocated instead to intensive probation supervision; the fourth group received intensive probationary supervision instead of conventional supervision. This design enabled direct comparison between custody and probation and, also, the comparison of the effects of different levels of probationary supervision.

On a four-year follow-up no differences could be found on several indices of reconviction between the experimental groups and the ordinary probation group. The subjects sentenced to an institution did worse than all probationary groups suggesting that probation represents a better alternative to custody independent of the quality of supervision received. The authors sound a cautionary note, however, when they discuss the comparability of the sample sub-groups. The custodial sub-group had to be increased in size and this was achieved beyond the principles of the original design. This served to make the incarcerated sub-group more criminal than the other sub-groups and is more likely to explain the results than any treatment effect.

The results of comparative studies of probation and alternative custodial measures are equivocal as to which represents the most effective sentence. There is certainly no suggestion that probation is any worse. The lack of optimism deriving from reviews of the efficacy of custodial sentences have given impetus to attempts to improve the quality of institutional experience for offenders. Experimental training programmes have been established and the post-release behaviour of subjects has been compared to that of subjects released from traditional regimes.

Empey and Lubeck (1971) developed a special regime in the Silverlake experiment in which they approached the question of rehabilitation by directing themselves to what they believed to be the roots of delinquent behaviour. They sought to use group pressures on the individual as a positive influence instead of the negative influence which, they supposed, is usual. Small subject groups were dealt with at any one time, staff were specially trained and the inmates were allowed considerable licence in the running of the institution. Subjects attended the local high school and were permitted frequent home leave. A control group for subjects in this programme consisted of delinquents sent to a traditional reformitory with its emphasis on regimentation and control. On a one-year follow-up the failure rates of the subjects released from the different conditions were equivalent. The only point of optimism for the experimental regime was that it had some effect, not on reconviction itself, but in reducing the severity of the subsequent offence.

Kassebaum et al. (1971) report the results of a study conducted to test the effect of group counselling in prison on the post-release behaviour of adult male offenders. In a new prison in California four conditions were established in a random allocation design. Three conditions represented variations in counselling practice and the fourth a control condition where no counselling was given. The resultant groups were demonstrated to be of equal status on a range of demographic and criminological variables. The

dependent variable was parole outcome and the progress of the groups was assessed at six, twelve, twenty-four and thirty-six months after release. There were no differences between treatment groups or between treatment and control groups in the number of reconvictions, the number of subsequent weeks spent incarcerated or in the most serious sentence received after three years. The authors consider the results not to support further initiatives in counselling programmes during sentences of imprisonment, especially in view of the substantial additional costs of intended treatment regimes. If such programmes are to continue they suggest that arguments other than a corrective effect must be advanced in their favour.

Bottoms and McClintock (1973) report a British study which attempted to improve the quality of institutional experience for young offenders. Over a four-year period (1961-65) a series of modifications were introduced into the regime at Dover Borstal. The aim of these changes was to cater to the needs of individual offenders. Detailed study was made of subjects' backgrounds for vocational and educational planning, group counselling and discussions were introduced and staff were encouraged to be more caring and less controlling. The progress of subjects on release was compared to that of offenders freed before the regime modifications but no differences were discovered. The authors conducted an analysis of the post-discharge criminal behaviour of the recidivists in both groups but this also failed to be discriminative. It was concluded, in line with Kassebaum et al. (1971), that arguments other than corrective efficacy should be advanced to support alternatives to traditional methods of imprisonment. As one such argument these authors cite the improved humanitarian conditions of regimes founded on concern for the welfare of the offender.

The results of Cornish and Clarke (1975) demonstrated that a modified therapeutic community established in one of three houses of an English approved school was unsuccessful in reducing recidivism. Subjects considered to be suitable for a treatment unit were randomly allocated to

this house or to a control unit run as a conventional approved school. In addition a pool of subjects considered as unsuitable for treatment were located in the third house to serve as a second control sample. On a two-year follow-up there were no differences between the three samples on reconviction, time to first reconviction, number of subsequent court appearances or seriousness of offence committed.

The evidence from initiatives to combat recidivism by experimental programmes in institutions is not encouraging. Post-discharge criminal behaviour has been demonstrated across samples to be independent of the range and quality of experiences afforded to offenders during incarceration. There is some evidence from America, however, that psychiatric intervention during imprisonment has had some corrective effect with offender groups. In a review of this area Brody (1976) reports that "in five out of nine American studies psychiatric treatment or attention did appear to have some corrective effect" (p. 40). To qualify this it is added that it is not known what aspects of treatment, whether independently or in conjunction with post-release factors, have produced this change. In this country Newton (1971) studied the post-discharge criminal behaviour of offenders released from Grendon, a psychiatric prison which receives inmates selected as being suitable for psychotherapy. There was no suggestion that the experience of Grendon had affected the subsequent criminal behaviour of those released.

Some of the nine examples included in Brody's review, it is acknowledged, suffer from the methodological problem of the comparability of experimental and control samples (Fowler, 1963) and the status of volunteers in experimental groups (Barbash, 1962; Mueller, 1964). Certain of the remaining results may report real effects but they refer to the limited population of those deemed appropriate for psychiatric intervention.

The conclusion of the failure of penal sentences to influence probabilities of reconviction derives from investigations which have neglected the possibility that different individuals may respond to the one

corrective initiative in different ways. It is conceivable that positive effects between sentences and offender types have been masked by the neglect of within sample differences by the majority of researchers. This suggestion would receive limited support from some reports on the corrective efficacy of different disposals which have allowed for between-subject differences.

Typologies of Young Offenders

The consideration of within-sample differences requires the adoption of a model for the assessment and classification of individuals. Dating from Lombroso in the latter half of the last century a host of offender typologies derived from different classificatory systems have emerged and, following Winch (1947), these typologies have been defined dichotomously as heuristic or empirical.

Heuristic classifications follow the principles of deductive logic and are founded on a body of theoretical knowledge. They depend upon the classification of subjects according to some variable or set of characteristics considered central to a particular theory. Examples of such typologies include taxonomies based on the following classes of data; physiological measures (Kretschmer, 1925; Sheldon, Hartl and McDermott, 1949), offences and patterns of criminal behaviour (Gibbons, 1965; Roebuck, 1967; Clinard and Quinney, 1973), sociological and sub-cultural influences (Lindesmith and Dunham, 1941; Cloward and Ohlin, 1960), prison behaviour (Sykes, 1958; Schrag, 1961),psychological integration (Weinberg, 1952; Ferdinand, 1966) and psychological maturity (Sullivan, Grant and Grant, 1957; Jesness, 1974).

These typologies, whilst theoretically meaningful, have tended to remain free of tests of their applicability and validity in an applied setting and, also, immediate practical considerations such as the question of

treatment strategies. Two notable exceptions to this general rule, however, are typologies of psychological maturity developed from the work of Sullivan et al. (1957) and the typology of criminal role-careers proposed by Gibbons (1965).

Empirical typologies derive from inductive logic and are based on demonstrated patterns of covariation. Emergent types are the products of associations among data identified by multivariate statistical analysis. These methods are not anti-theoretical as recourse to theory must guide both the selection of variables to be sampled and the interpretation of the resulting statistical analysis. In contrast to most heuristic typologies many of the taxonomies which have been developed by these methods have been subjected to tests on the criteria advanced for evaluating the efficacy of classification systems. These criteria have been described in various publications (e.g. Gibbons, 1965; Megargee, 1977) but perhaps their most explicit enunciation is found in the following quotation from Warren (1971): "In addition to the usual criteria expected of a good typology, such as complete coverage of the relevant population, clear-cut, non-overlapping categories, internally meaningful and consistent categories, and parsimoniousness, it is especially important to any classification system used for scientific purposes that the types be sufficiently well defined so that the abstractions can be used with high reliability by trained raters" (p. 242).

While the typologies to be reviewed in the current work will be described and evaluated under the headings of heuristic and empirical the sometimes arbitrary nature of this distinction will become apparent. For example, the heuristic typologies to be reviewed have been subjected to tests of reliability and validity whereas in the development of empirical typologies there is often recourse to psychological theory.

(a) Heuristic typologies

(i) Gibbons (1965), Glaser (1972) and Clinard and Quinney (1973) have all advanced typologies based on criminal career patterns. Gibbons' taxonomy seeks to classify juvenile and adult offenders according to "five defining dimensions or definitional variables" (1975, p. 148) and is the only role-career typology whose applicability has been tested empirically. The five definitional variables cover details of offending patterns, details of the offending situation, the offender's self-concept, his attitudes and his role-career, the last category describing the overall career pattern of offending. The resultant typology also embraces details about the social background of the offender types identified by the definitional variables and despite the apparent lack of clarity in the information used for classification Gibbons was able to delineate nine delinquent role-career types and twenty-one adult role-career types.

The delinquent types included categories such as 'predatory gang delinquent', these individuals being involved in a variety of property offences including repetitive and serious thefts and burglaries. They are usually labelled as gang delinquents and they exhibit a delinquent self-image, anti-social attitudes and a pattern of early entry into delinquency. Together with these characteristics Gibbons listed background dimensions, these including details of social class, family background, peer-group associations and information on contact with defining agencies such as the police. Other delinquent types included 'casual gang delinquent' and 'overly aggressive delinquent' while adult categories included types such as 'professional thief' 'naive cheque forger' and 'organised crime offender'. Each type, whether delinquent or adult, is described in equally rich terminology to the 'predatory gang delinquent' and although such a taxonomy would appear to meet few of the evaluative criteria proposed by Warren, Gibbons was able to provide differential treatment recommendations for the identified types.

He reviewed three forms of psychotherapy and three forms of environmental therapy before recommending treatment prescriptions for each of the nine delinquent and twenty-one adult types. In the case of the 'predatory gang delinquent' this prescription involved group intervention to convert them into members of an antidelinquent society. Gibbons reasoned that "if individual gang members are to be changed the group must be changed ..... (and thus) ..... group therapy in which members are encouraged to develop counter-criminal norms is the most likely tactic of those presently available for the achievement of these ends" (1965, p. 231).

In the one reported test of the practical utility of this offender classification system (Hartjen and Gibbons, 1969) the validity of the typology was not established. A group of probation officers, after studying the delinquent and adult types proposed by Gibbons, added two types, 'alcoholic delinquents' and 'marijuana hippies', which they claimed to encounter in their caseloads but which were omitted from Gibbons' typology. They then used definitional dimensions and background variables to construct profiles of the original plus the two additional types. Next, groups of three probation officers acting as judges studied the case records of 655 probationers and compared this data against the constructed profiles. Each judge evaluated the cases independently and a probationer subject was only assigned to a type if at least two of the judges agreed.

The results of the exercise showed that only 312 of the 655 cases could be classified as falling within a type. Of these 61 per cent fell into four types, only two of which were suggested by Gibbons. Of the 343 cases not classified, 312 were judged by at least two officers as not falling into any type within the typology. Thus within the low rate of overall classification there was a relatively high degree of inter-rater agreement with judges either agreeing that a case represented a particular type or that it did not fall into any of the types.

This might suggest that Gibbons taxonomy would meet Warren's (1971) demand for operational definitions of the types which can be used with a high reliability by trained raters. However, this results not only from the number of cases which were reliably classified but, equally, from the inter-rater agreement that over half the sample did not fall into any type. Moreover, the system is far from parsimonious. Although Gibbons proposed as many as nine delinquent and twenty-one adult types, less than half the sample could be classified and of those cases which could be classified 61 per cent fell into four types, only two of which were suggested by Gibbons. The obvious questions posed by these results for the validity of the taxonomy are acknowledged by Gibbons: "Although it is perhaps too early for unequivocal assertions about the long-term prospects for career-oriented typologies the evidence to date does not seem encouraging." (Gibbons, 1975, p. 152). Given this failure to establish the validity of the typology there has been no empirical examination of the efficacy of the differential treatment strategies proposed by Gibbons.

(ii) Typologies of psychological maturity which have been used to classify delinquent populations are developed from the Interpersonal Maturity Level (I-level) Theory of Sullivan et al. (1957). According to this theory psychological development is characterised by seven stages of interpersonal maturity ranging from the primitive interpersonal reactions of the newly born infant to a theoretical ideal of social maturity. At each of the seven stages the individual is confronted with a series of interpersonal problems which must be tackled and resolved before he passes to the next stage. Every individual, however, does not succeed in working through each stage and may become fixed at one particular level of psychological maturity.

This model for offender classification has been adopted by the Community Treatment Project (see, for example, Warren, 1964; Warren and

Palmer, 1966; Palmer, 1974), a long-term research programme conducted in California which has been described as "the first large-scale effort to apply differential treatment concepts to the rehabilitation of juvenile offenders" (Beker and Heyman, 1972, p. 9). In the context of this research it has been found that the range of Maturity Levels in the delinquent population is from Maturity Level 2 (Integration Level 2 or I_2) to Maturity Level 5 (I_5). It is argued, though, that the infrequency of I_5 means that for all practical purposes, use of I_2 to I_4 adequately describes the delinquent population (Warren, 1969).

A development of the theory which has come about with the Community Treatment Project is the recognition that different patterns of behaviour within levels must be acknowledged before consideration of differential treatment. Accordingly the I-level system has been refined by delineating sub-types within I-level; two at I_2, three at I_3 and four at I_4, thus providing nine delinquent groupings.

I-level two describes a primitive egocentric individual who behaves impulsively and relates to others only on the basis of self-interest. There are two subtypes, the 'asocial aggressive', who becomes hostile and aggressive when frustrated, and the 'asocial passive' who complains or withdraws in the face of frustration of his impulses.

An individual at I_3 understands that his behaviour affects others but he has an incapacity to understand the needs, motives and feelings of others who are different from himself. Sub-types include the 'immature conformist' who complies with whoever he perceives to have power, the 'cultural conformist' who conforms to the norms of his delinquent peer group, and the 'manipulator', who contrives to obtain power.

I-level four denotes individuals who perceive a level of interpersonal interaction in which people have expectations of each other. They demonstrate the ability to relate to people emotionally, are concerned about status and respect and are strongly influenced by those they admire.

The four I_4 sub-types are 'neurotic acting out', who misbehave to avoid anxiety, 'neurotic anxious', whose conflicts produce signs of emotional disturbance, the 'situational emotional reaction' which describes those who act out in a crisis and the 'cultural identifier', who lives out his delinquent beliefs.

I-level classification is based on a semi-structured interview of one to one and a half hours. It is tape-recorded to allow for later rating of the content with the goal of obtaining the interviewee's perceptions of his world and his typical way of responding to those perceptions. The rating of the interview content is the last stage in the diagnosis and consists of each individual being rated on all the characteristic items of each of the three interpersonal maturity levels. Next, the characteristic items for the sub-types within the diagnosed level are rated and the sub-type determined. This procedure, it should be noted, dates from August 1966 and represents a modification of the earlier method whereby a subject was classified and was then rated only on those items which characterised the designated I-level and sub-type.

Warren et al. (1966) report inter-rater agreement in about 85 per cent of the cases and this figure finds support in independent examinations of the reliability of the rating of interview content. Hunt and McManus (1968) report inter-rater agreement of 90 per cent for I-level and 79 per cent for sub-type classification while Cross and Tracy (1969) found 96 per cent agreement for I-level and 75 per cent for sub-types.

In view of the considerable time investment of an individual interview of one to one and a half hours plus the time for the rating of the content other researchers have attempted to develop more economical methods of assigning subjects. Gottfredson and Ballard (1963) and Beverley (1965) have used personality scales to classify subjects into two broad groups of high maturity and low maturity and although they each report success rates of 75 per cent this work does not provide an adequate

test of the reliability of the I-level system. Moreover, Warren (1978) only supports the use of such methods of classification when their purpose is large-scale screening designed to facilitate management decisions. They are not approved for the formulation of treatment programmes.

In a series of criticisms of the I-level system Beker and Heyman (1972) argue, first, that its theoretical formulation is unclear and that it is impossible to assess construct validity. Second, they argue that the failure of the authors to say how and on what bases the I-level and sub-types were developed makes it difficult to test the internal consistency of the system. Third, they criticise the operational presentation of the types, arguing that they are "vaguely descriptive rather than behaviourally explicit" (p. 17). Finally, questions are raised about overlap on the categories and the presentation of the types as empirically derived response sets when, in fact, they are derived from an essentially clinical assessment.

It would seem from these comments that the system would never meet the criteria for a useful typology. It is certainly true that the construct validity of the system has never been tested and that those arguments advanced in favour of the system have rested on the inappropriate criterion of the effectiveness of treatment programmes. This criterion means, for example, that when significant differences in the predicted direction occur between randomly allocated experimental and control subjects placed in appropriate and inappropriate treatment conditions support is lent to the typology. Alternatively, if the differences do not occur it is impossible to reduce the failure to either problems with the typology, the treatment conditions, or the matching of subjects to treatment. Nevertheless it remains conceivable that the I-level system, albeit with insufficient theoretical formulation, could produce a meaningful classification for allocation to differential treatment conditions.

On the question of the reliability of the system Beker and Heyman's criticisms do not find support in empirical evidence. Warren et al. (1966), Hunt and McManus (1968) and Cross and Tracy (1969) all report a high degree

of inter-rater agreement despite the criticism about the vague nature of type descriptions.

Therefore, notwithstanding the issue of construct validity, the I-level typology meets many of the evaluative criteria for an adequate offender classification system. Furthermore, the implications of the system for differential treatment have been examined empirically in the Community Treatment Project and other studies. This work will be described and evaluated later in this chapter.

(b) Empirical Typologies

(i) Hewitt and Jenkins (1946) classification of problem children represents one of the first attempts to establish an empirical typology of subjects. These authors examined a sample of 500 case records of boys referred to a Michigan child guidance clinic and found references to a total of ninety-four different kinds of 'problem behaviour'. By eliminating behaviours infrequently noted, and those not thought to be theoretically important, the ninety-four original variables were reduced to forty-five which were then intercorrelated.

The patterns of intercorrelation led to the identification of what the authors called three 'behaviour syndromes'. The 'unsocialized aggressive' syndrome referred to a cluster of traits including assaultive tendencies, cruelty, defiance of authority, and inadequate guilt feelings. The 'socialized delinquent' syndrome included the features of bad companions, gang involvement, co-operative stealing,and truancy from school and home. The third syndrome, defined as 'overinhibited', embraced the traits of shyness, apathy, worry, sensitivity and submissiveness.

Hewitt and Jenkins examined the home backgrounds of the boys in the sample and found each syndrome to be associated with distinctive family patterns. For example, the 'unsocialized aggressive' children tended to have

experienced parental rejection, the 'socialized delinquents' were often the product of parental negligence while the 'overinhibited' were more likely to have experienced a repressive upbringing in a tense family atmosphere.

Despite the conceptual sense of the identified syndromes, and the finding that the trait clusters have been replicated by later research, the study of Hewitt and Jenkins can be criticised on a number of grounds. First, the syndromes were developed from case histories which are known to be of limited validity and reliability. Second, no data was presented with regard to the reliability of the ratings made from the case histories. Third, a group of traits was judged to form a cluster or syndrome if the traits within it intercorrelated at least 0.30 but inspection of the results demonstrate that, while only a small number of trait intercorrelations fall below this value, the criterion was not strictly respected.

Given these limitations it is not particularly surprising that Hewitt and Jenkins were able to assign only 39 per cent of this construction sample of 500 to one of the three syndromes. In a replication of this work with a delinquent sample in this country Field (1967) was unable to confirm the association between behaviour type and previous background. In the classification of subjects she repeated Hewitt and Jenkins finding that only 39 per cent of the cases could be unambiguously assigned to one syndrome. However, while the former authors found that less than 3 per cent of their sample could be multiply classified Field identified 51 per cent who were mixed cases falling into more than one category. This finding serves to exemplify one of the main problems of typologies derived from statistical associations between variables in that the requirement to classify subjects into mutually exclusive categories ignores the basic assumption of the dimensionality of traits. This issue receives further comment in an evaluation of Quay's (1964a, 1964b, 1965, 1966) taxonomic system, the goal of which was to assist the differential management and treatment of delinquents.

The Hewitt and Jenkins typology obviously fails to meet the previously outlined evaluative criteria for offender classification systems. Nevertheless, considering that this work represented one of the first attempts to develop an empirical typology, it is difficult to disagree with Quay (1965) that "Hewitt and Jenkins have made a major contribution, methodological weaknesses notwithstanding" (p. 152).

(ii) Adopting the same methodology as Hewitt and Jenkins, but with the case records of convicted delinquents, Jenkins and Glickman (1947) confirmed the existence of 'socialized delinquency' and 'unsocialized aggressive' syndromes. However, for the third factor these authors preferred the term 'disturbed' to 'overinhibited'. This work has been extended and replicated by successors, most notably by Quay and his co-workers who replaced the inspectional methods for deriving behaviour types by the more rigorous method of factor analysis. Also, these authors have acknowledged the likely weakness of case history data and have extended their analyses to include self-report questionnaires and behaviour ratings by supervisors or counsellors.

A series of studies across the different media have led to the consistent identification of four factors, or behaviour categories to use Quay's preferred term. In the first of these studies Peterson et al. (1959) administered two questionnaires (Gough and Peterson, 1954; Quay and Peterson, 1958) to 116 institutionalised delinquents and 115 high school students equated for age and area of residence. The responses to the items were factor analysed and fifteen factors were extracted by the complete centroid method. However, ten factors were excluded on examination of their relative contributions to the total variance.

The first factor was composed of items indicating impulsivity, rebelliousness and an open distrust of others. This factor was labelled 'psychopathic delinquency'. The second factor also implied impulsive

acting-out, but as these elements were accompanied by remorse, tension, guilt and depression it was considered to represent 'neurotic delinquency'. The third factor consisted of items relating to family problems rather than individual characteristics. The fourth factor was viewed as difficult to interpret but as it suggested feelings of incompetence and failure it was defined as 'inadequacy'. The remaining factor was also less explicit and was assumed to be most closely related to a history of scholastic maladjustment.

Quay (1964a) used a 36-item checklist on which five parole officers working from case history data rated 115 male delinquents. The checklist contained behavioural characteristics from the syndromes identified by Hewitt and Jenkins (1946) and a further group of items designed to tap the factor of 'inadequate delinquency' identified by Peterson et al. (1959). As the parole officers used seven items in less than 10 per cent of the cases the remaining 29 items were intercorrelated, factor analysed by the principal axis method and rotated orthogonally. The four factors rotated accounted for 68 per cent of the variance.

The first factor had high loadings on traits which were part of Hewitt and Jenkins 'socialized delinquent' dimension. It was considered by Quay to represent "the psychologically normal group-delinquency phenomena" (p. 482) and was labelled 'socialized-subcultural'. The second factor loaded on the Hewitt and Jenkins variables of assaultive and defiant plus the additional trait indicators of aggression and the inability to profit from either praise or punishment. This dimension was called 'unsocialized - psychopathic'. The third factor was similar to Hewitt and Jenkins 'overinhibited' syndrome and was characterised also by anxiety and timidity. It was assigned the title of 'disturbed-neurotic'. The fourth and final factor was defined by the inability to cope, incompetence and immaturity. This dimension was called 'inadequate-immature'.

In a further study Quay (1964b) analysed ratings of 113 male delinquents by twelve correctional officers in charge of living units in a

federal training school. The Peterson Problem Checklist (Peterson, 1961) was used and as 110 of the subjects were rated twice by different raters the analysis was actually conducted on 223 ratings. Twelve of the fifty-eight items from the checklist were found to have been used in fewer than 10 per cent of the cases and thus the factor analysis was conducted on ratings on the remaining 46 variables. The principal axis method was used and the three factors rotated orthogonally accounted for 73 per cent of the variance. These factors replicated the 'unsocialized-psychopathic', the 'disturbed-neurotic' and the 'immature-inadequate' factors identified by Peterson et al. (1959) and Quay (1964a). The dimension of 'socialized - subcultural' delinquency which has appeared in case history and some questionnaire analysis (Peterson, Quay and Tiffany, 1961) did not appear in this study. This finding is attributed by Quay either to the fact that this behaviour syndrome was not represented in the rating scale or to the possibility that the syndrome is not recognised once a boy has been institutionalized. Examination of the checklist showed that the characteristic traits of 'socialized subcultural' delinquency are not highly represented and thus the former explanation was the most plausible.

According to Quay the results of this series of studies across different media suggested sufficient consistency to propose a typology of offenders based on four factors. He called the factors behaviour categories and proposed three instruments for their assessment. These consisted of a behaviour checklist for direct rating of delinquent traits, a form for the collection of life history data and a personality questionnaire. The instruments are each scored on three or four behaviour categories and the individual scores are combined to classify subjects into one of the four categories based on the primary dimensions of deviance.

The behaviour categories are 'immature-inadequate' (BC-1), 'neurotic-disturbed' (BC-2), 'unsocialized-psychopathic' (BC-3), and 'socialized-subcultural' (BC-4). The categories, according to Quay, occur

not only in delinquent populations but also with emotionally disturbed and normal individuals, the essential differences between the populations being the levels of the scores on the dimensions. The validity of the typology has been demonstrated by further replications of the factor analytic studies (Quay, 1977a) and by tests by independent investigators of hypotheses derived from the typology (Borkovec, 1970; Megargee and Golden, 1973).

Gerard (1970) has reported the use of the typology to allocate delinquents to hypothesized optimal management and treatment conditions in a closed institution. The offender population were classified using the three instruments proposed by Quay, but in addition to types BC-1, BC-2, BC-3 and BC-4 a fifth type was identified. These subjects were found to score equally high on BC-1 and BC-4 and the clinical judgement of staff was that they shared more traits among themselves than with any other group. This led to the establishment of BC-5 which was defined as 'subcultural-immature'.

Of the offenders sent to the institution "more than two-thirds were committed for driving a stolen car across a state line" (p. 38) but despite this Gerard proceeded to outline for each behaviour category major treatment objectives and the type of employee most effective as a treatment agent. For example, for the 'inadequate-immature' (BC-1) the major programme objective was to establish "a secure, non-threatening environment in which 'growing up' can be stressed" (p. 39). Suitable treatment agents for this category were seen as instructive, patient, reassuring and supportive. Conversely, treatment agents for the 'socialized-subcultural' (BC-4) individuals were recommended to exert firm control and discipline to facilitate the treatment objective of modifying the offenders gang-influenced value system.

Unlike the classification of individuals received at the institution the different treatment agents and treatment goals were not classified by

reliable operational definitions. They represented loose general prescriptions which would present difficulties for both the management of the different conditions and for the important question of the evaluation of the efficacy of the different strategies. The former issue is not discussed in Gerard's paper, which is essentially a descriptive report, but he does propose long-term evaluative criteria of post-release adjustment, programme costs, custody and control considerations and "the quality of student life at the centre" (p. 43). It is interesting to note his use of the term 'student' as opposed to inmate or offender.

Quay (1977b) and his colleagues have also written extensively on the question of evaluating correctional strategies but there is an absence of empirical investigation of the post-release effects of differential treatment on the different offender types. In the one empirical study examining post-release effects the behaviour categories were not used to allocate subjects to differential treatments but to match subjects in experimental and control conditions in a juvenile offender diversion programme (Quay and Love, 1977).

Although demonstrations of the validity of the behaviour categories have led to differential treatment prescriptions such as those of Gerard there remains the issue of the reliability of the classification system. For example, beyond introducing the new behaviour category of 'subcultural-immature' (BC-5) Gerard and his colleagues found that certain subjects, because of similar scores in two areas, had to be assigned to a category by the clinical judgement of a psychologist.

The evidence from one of Quay's (1964b) own studies raises serious doubts about the reliability of one instrument of the classification system. In this study 110 out of 113 subjects were rated twice by different raters on a problem checklist. This permitted calculation of the intercorrelation between the factor scores for the two series of ratings. This gave

coefficients of .17 for the first factor (BC-3), .07 for the second factor (BC-2) and .45 for the third factor (BC-1). Quay admitted that these intercorrelations were "disappointingly low" (p. 36) but argued that inspection of the ratings assigned by the individual raters showed three of them to be deviant from the rest in the mean scores and standard deviations for the three factors. Eliminating these raters allowed a reanalysis of the intercorrelation across 58 cases, with resultant coefficients of .57 for BC-3, .32 for BC-2 and .93 for BC-1. Quay acknowledged the remaining disagreement between the raters for BC-3 and BC-2 but proceeded to argue that "this study provides another link in a chain of accumulating evidence which indicates that the personalities of delinquent boys can be meaningfully viewed within a three or four dimensional framework" (p. 37). This may be true but the relevance of Quay's system for differential management and treatment is contingent not upon the identification of those dimensions but upon the reliable allocation of delinquent subjects to the dimensions.

The low reliabilities obtained for BC-3 and BC-2 exemplifies the problem of attempting to classify subjects into mutually exclusive categories when, in practice, the categories can covary. Quay argues that the categories are orthogonal but intercorrelations between the factor scores in the above study produced coefficients of .33 (BC-3 - BC-2), .49 (BC-3 - BC-1) and .73 (BC-2 - BC-1). These intercorrelations are explained by Quay as being due to rater 'halo', which refers to the tendency to see individual delinquents as 'all good' or 'all bad'. It is believed that more experienced raters would not provide such high intercorrelations and Quay rightly points out that similar factor score intercorrelations from case history analysis were considerably lower (1964a).

While the lower inter-rater reliabilities quoted for BC-3 and BC-2 refer to a small sample on the one instrument of a problem checklist Quay and Parsons (1970) report from their normative data higher reliabilities

for the composite scores obtained across instruments. However, Grayson (1977) questions the practice of using scores from three instruments to produce a composite score. He reviewed Quay and Parsons normative data and demonstrated intercorrelations between different scales on the same instruments to be higher than between the same scales on different instruments. This issue is paid little attention by Quay and Parsons but it is argued by Grayson that it makes it difficult to justify combining scores from the different instruments.

It is apparent that serious questions can be posed about the applicability of Quay's taxonomy for assigning subjects to differential treatments. The behaviour categories are conceptually meaningful and have been shown by subsequent research to be valid but there remains the methodological consideration of composite scores derived from different instruments. Second, the covariance of the categories means that they are not clear-cut and non-overlapping. Some subjects who record similar scores in two categories, therefore, will either have to remain unclassified or will have to be classified by some secondary assignment procedure such as the clinical judgement used in the work reported by Gerard. Finally, the question of the reliability of the individual instruments has not been demonstrated. Very low reliabilities are quoted in the study of behaviour ratings (Quay, 1964b) while in the analysis of case history data Quay (1964a) writes that "unfortunately, the exigencies of the experimental situation did not permit the estimation of rater reliability on either a rate-rerate or inter-rater basis" (p. 481). This is not interpreted as a problem by Quay and typically he prefers to emphasize the recurrence of the behaviour categories whilst neglecting to address those issues which determine the practical utility of a typology.

(iii) Megargee and Bohn (1979) summarise a series of studies (e.g. Meyer and Megargee, 1972; Megargee and Bohn, 1977; Megargee and Dorhout, 1977)

which have contributed to the development and validation of an empirically derived typology based on the analysis of responses to the Minnesota Multiphasic Personality Inventory (MMPI: Hathaway and McKinley, 1951). Megargee and his colleagues sought to develop an empirical typology which, unlike existing systems, provided clear operational definitions and reliable guidelines for profile classification. It was considered that the development of such a system would contribute much to the general field of criminal justice administration in the United States, but particularly to facilitating the classification of offenders for differential management and treatment.

It was the authors' belief that the development of an MMPI-based classification system would have a number of advantages. First, it would provide a uniform data base with the data being obtained readily from group-testing sessions. Second, as neither individual clinical interviews nor the retrieval of information from case records was required subjectivity and inter-rater unreliability were eliminated. Third, as the MMPI was already widely used in criminal justice settings many agencies would already hold data on the offenders under their jurisdiction. Last, the MMPI could be re-administered to reflect changes over time in individuals, something that was seen as important for the evaluation of intervention strategies.

In the deliberate attempt to use the instrument to devise a typology with practical utility the authors structured the research around a series of questions central to the evaluative criteria for a typology. The first concerned the identification among MMPI profiles of distinct groups of like-scoring subjects. The second concerned the reliability of such groups or, in other words, the emergence of the same basic groupings in different samples. Next, it was investigated whether a clinician could sort individual MMPI profiles into such groups reliably and, following this, whether the groups could be defined operationally so that other clinicians, or a computer programme, could sort individual profiles. Finally, the groups

were compared on collateral data on the understanding that further differences supportive of MMPI-based differences were necessary before differential treatment could be considered.

The population sampled to tackle these questions came from a federal institution for 'youthful offenders' which was only four miles from Megargee's base at Florida State University. As part of ongoing research he had already collected over 5,000 MMPI profiles when the current investigation began in 1970. This data was supplemented for the development of the typology by a wider array of data collected on 1,345 consecutive admissions. These subjects were followed from reception to the institution through the period of their incarceration and eventually on release into the community.

The initial development of the taxonomy centred on the search for reliable sub-groupings of MMPI profiles. Three independent samples were subjected to hierarchical profile analysis using Veldman's (1967) programme, 'H-Group'. This is a clustering algorithm, based on the earlier work of Ward (1962), which combines the data into similar groups of individuals by maximising inter-group distance and minimising intra-group distance. This is achieved at each stage of the analysis by combining the two most similar profiles into a group (giving n-1 groups) and estimating the error variance attributable to this fusion. As more and more profiles are combined into groups the error variance within groups naturally increases, with the first large increase indicating the point at which further fusions might be unprofitable. The number of groups before this increase is suggested by Veldman as the optimal solution.

In the three analyses the first large increase in the error term occurred between thirteen and fourteen groups in one sample and between eleven and ten groups in each of the other two samples. This suggested the adoption of one fourteen group and two eleven group solutions but as the authors decided to omit all subgroupings of less than five subjects this

resulted in one solution of eight groups and two solutions of nine groups. Next, the groups from the different samples were matched with one another and it was found that "there was noteworthy agreement when the independent matchings of the two investigators were compared" (Megargee and Bohn, 1979, p. 90). Two groups occurred in only one sample and while one of these groups was retained because it was a large group with unique profile characteristics the other was rejected because of its small size. The other groupings were successfully matched between samples and resulting from this process the authors were left with a solution of nine groups.

To examine the reliability of the classification of individual subjects eighty-five profiles were selected randomly from the prison population and were sorted into the nine groups by Meyer and Megargee acting independently. Most of the profiles were sorted into the same groups providing a level of 87 per cent inter-sorter agreement. Thus, not only did the MMPI profiles of youthful offenders appear to fall into distinct subgroupings but it appeared also that rules could be formed for the reliable classification of individual profiles. Despite this Meyer and Megargee (1972) argued against affixing descriptive labels to the groups. They hoped to preclude possible fixation on a single designation which could be demonstrated by subsequent empirical data to be simplified or invalid. Accordingly, each group became designated by neutral alphabetic names such as 'Able', 'Baker' or 'Charlie'. Before empirical study of the attributes of the groups, however, Meyer and Megargee sought to determine the acuity of operational definitions for profile classification.

The original rules for profile classification (Meyer and Megargee, 1972), were refined and developed by Megargee and Dorhout (1977). The latter author incorporated the original rules for classification into a computer programme which was able to classify thirty-five out of fifty cases accurately. The fifteen unclassified profiles were examined and consequently modifications were made to the programme. This sequence of steps continued with successive

samples and in the course of this work a new grouping was identified. The profiles in this group were similar to each other but they failed to meet the criteria for inclusion in any of the original groups. The authors suggested that this group may have emerged earlier but have been discarded for being too rare. Despite this belated identification the tenth group was retained and rules for its classification were written into the programme.

After these revisions the programme was able to correctly classify 91 per cent of a sample of thirty-five cases typed independently by Megargee. Profiles were designated as either uniquely classified, multiply classified if they met the criteria for more than one group, or unclassified if they failed to meet the minimum criteria for any group. This final version of the programme was completed in 1975 and by this time over 1200 MMPIs had been collected at the federal institution. These profiles were classified by the programme leading to 63 per cent uniquely classified subjects. Twenty per cent of the subjects fitted the criteria for two groups equally well and 16 per cent remained unclassified. Those subjects designated multiply classified or unclassified were subjected to independent clinical examination and this led to the classification of 96 per cent of the total sample.

Megargee and Bohn (1979) stress the economy of this procedure, arguing that two thirds of the profiles were "literally classified overnight" (p. 105). The multiply classified and unclassified cases were resolved by clinical judgement, this part of the procedure taking less than five working days. It is thus suggested by Megargee and Bohn that any criminal justice agency could expect the expenditure of only one day of clinical time for every three hundred offenders classified.

For the next stage of the research the ten groups of offenders were compared on a range of dependent variables. The sample for the analysis included every offender who entered the institution between November 1970 and

November 1972 and on whom a comprehensive array of data was collected. This included the following classes of information; demographic, academic and intellectual, social and developmental, personality and attitudinal, ratings of psychologists' observations from interview, measures of institutional adjustment including work performance and educational evaluation and, finally, recidivism indices. The categorical variables in the data were analysed by chi-square tests and the continuous measures were analysed by Duncan's new multiple range tests. This afforded one hundred and sixteen analyses across groups and of these ninety seven produced statistically significant results. These differences in themselves do little to provide support for the typology but the authors remark that "the data were internally consistent; information from all the different sources - case histories, self-reports, psychologists' evaluations, personality tests, institutional adjustment and recidivism - all converged, showing similar ordinal relations among the groups" (Megargee and Bohn, 1979, p. 153).

Given that the groups were demonstrated to differ in their behaviour the authors sought to examine the implications for differential treatment. They describe the groups in terms of the modal characteristics of their hypothetical average member and implications for treatment are appended. Despite the high number of groups, and the fact that five groups each contained less than 10 per cent of the sample members, the research team resisted the combination of similar groups. It was argued that the data should determine the number of groups and that the apparent similarity in profile between certain pairs of groups was not substantiated by collateral data.

The largest group, Item, (containing 19 per cent of the sample) and Group Easy (7%) each presented profiles marked by an absence of high scores on scales reflecting significant psychopathology. They were normal groups who came from favourable home environments and who had few problems in interpersonal relations or general adjustment. Relative to

other groups their criminal behaviour patterns were less severe, with fewer serious and violent offences. They both adapted without difficulty to institutional requirements and did better than all other groups on five measures of post-release success. They differed from each other in their level of application to tasks and educational and vocational attitudes. Group Easy recorded the highest scores of all groups on measures of intellectual ability and academic achievement but were less interested in educational and vocational tasks than Item. Essentially the differences between the groups relate to the higher academic ability but less positive attitudes of Easy. Neither group is seen as having pressing treatment needs and for each of them incarceration can only serve the purpose of either deterrence or punishment. Though, it is suggested that the most criminal element in Item might benefit from reassessment of their own conscious reasons for continual involvement in law violation. For this purpose Reality Therapy is considered to provide the most appropriate treatment model. Similarly, Easy, although having no immediate treatment needs, "would be good candidates for insight-oriented treatment aimed at making them more accurate in their own self-perceptions" (Megargee and Bohn, 1979, p. 189).

Just as two groups fall under the general heading of normal it would appear that another two could be labelled as neurotic despite certain differences between them. Baker (4%) had one of the least deviant MMPI profiles but this was not supported by the personality test data and psychologists' evaluations which showed them to be withdrawn, anxious, unassertive and socially isolated. This inconsistency is repeated on the indices of institutional adjustment. Baker was one of the most troublesome groups in the institution and incurred the third highest number of disciplinary violations but, concurrently, recorded the most favourable evaluations of all groups on twelve of the seventeen scales in the areas of interpersonal adjustment and work performance. The series of inconsistencies

between assessment media are paid scant attention by the authors who define this group by reference to the dependent variables.

As with the normal groups there are no fixed treatment prescriptions for Baker. They do have deficits but they are not considered sufficient to merit incarceration or particularly close supervision. Pyschotherapy and counselling are proposed to assist them to develop more adaptive behaviour patterns and to help them cope with stress.

The second neurotic group, George (7%), has a similar but more elevated MMPI profile than Baker. They were evaluated by the psychologists as being average in social and interpersonal relations and the personality test data showed a higher level of social adaptation than would be expected from neurotic subjects. In terms of institutional adjustment they recorded median scores on the majority of scales but were assessed very highly on work performance and educational evaluation. Unlike Baker these subjects are defined by their MMPI profile and not by the dependent variables which, across media, do not load highly on neuroticism. The only score indicative of this diagnosis is the high level of state anxiety and the authors themselves admit that this might simply be a temporary reaction to the stress of imprisonment.

There are no structured treatment recommendations for George but it is stated that whether they should be treated in the community or a closed institution should depend upon the nature of their offence. In reviewing treatment possibilities the authors comment on the transitory nature of the anxiety experienced by this group and remark that their major difficulties relate not to enduring personality features but to the fact of their incarceration. Nevertheless it is apparent from their work performance ratings and educational evaluations that these subjects do make some gains from their incarceration.

As well as two neurotic groups three disturbed groups were identified which were labelled Foxtrot (8%), Charlie (12%) and How (13%).

For these groups their criminal behaviour was symptomatic of severe psychopathology. Foxtrot and Charlie come from socially deviant backgrounds and in the adoption of a criminal code they reject conventional values and ideals. They are hostile, aggressive, weak in interpersonal relations and social adjustment and, along with How, are rated most negatively on work performance and educational evaluation. Both groups are seen as highly deviant, tough and streetwise although Foxtrot is considered to be less resentful, bitter and misanthropic than Charlie. Foxtrot had the worst record on objective indices of prison adjustment while Charlie were rated the lowest of the ten groups on interpersonal adjustment measures.

Group How had the lowest socio-economic status of all groups and engaged in the most deviant and criminal behaviour at an early age. They reported having experienced problems during previous incarcerations and were pessimistic about their capacity to adjust to the current sentence. The personality data indicated higher state and trait anxiety than every other group, poor ego strength and a high level of personal problems. During incarceration they were rated as the worst group on eight of the nine scales of work performance and on all three measures of educational evaluation.

According to Megargee and Bohn (1979) the MMPI profile and collateral data suggest that the treatment needs of How, Foxtrot and Charlie "appear to be too great to be met in a conventional prison setting" (p. 231). Foxtrot is deemed to need assistance in every area but as these individuals are unlikely to co-operate the authors argue that the resources of penal establishments should be best directed towards those individuals with less extensive requirements who might benefit from the intervention. Charlie and How, even more severe in their psychopathology, are considered to be inappropriately placed in penal settings and to be in need of extensive mental health treatment.

The second largest group, Able (17%), shares a similar profile with Foxtrot, but is shown by the collateral data to be a distinctly different type. These individuals are less hostile and alienated than Foxtrot and they have the ability to form productive personal relationships. They come from homes with a relatively high socio-economic status and they have experienced few academic or vocational problems. Their criminal records are light to moderate and they are at the median in their history of violence. Their characteristic features are a happy-go-lucky nature, extraversion and impulsivity. As they are also sociable, self-assured and forceful they reflect the typical stereotype of a young delinquent. During incarceration they had consistently high work performance ratings but their scores on measures of interest and initiative exceeded those of dependability and responsibility. Their definition of young delinquent reflecting social pathology, rather than psychopathology, is supported by their having the second worse record of rearrests.

The treatment aim for Able is to encourage them to accept the social values they have been taught, but have rejected. They are considered a difficult group to treat in the community and it is suggested that the optimal programme might combine a short period of incarceration followed by close supervision in the community. It is hoped that such a programme could rechannel the undoubted positive qualities of this group from illegal to approved lawful activities.

It will be seen that these groups presented by Megargee and his colleagues, although greater in number, fall within the same general classification as the behaviour categories identified by Quay. This is also the case with group Delta (10%) whose MMPI profile is marked by a single massive elevation on the Psychopathic Deviate scale. This psychopathic group report a disturbed family upbringing and they are typed by the psychological evaluations and test data as energetic, assendant and aggressive.

Although bright, articulate and ambitious they are totally insensitive to the needs of others. During institutionalization they receive poor scores on interpersonal adjustment and work performance ratings, but less unfavourable than those recorded by the disturbed groups, Charlie, Foxtrot and How.

In reviewing treatment options for Delta it is commented that their offences will influence sentencing options. Their treatment needs concern their relations with others but being unreflective individuals they are unlikely to respond to attempts to develop self-understanding. Hence, Reality Therapy, which stresses the present rather than the past, is proposed as the model most likely to influence Delta individuals to achieve their goals in a socially approved manner.

The tenth group, Jupiter (3%) was not identified in the original hierarchical analysis and this is the only group with more black than white members. Intellectually and academically they are close to the population mean, but generally the collateral data presents a different picture from their MMPI profile. The profile suggests hyperactivity, alienation and abrasive interpersonal relations yet Jupiter is evaluated by the psychologists as the most passive of the ten groups. The authors resolve this inconsistency by reference to the high percentage of blacks in the group, arguing that normal blacks have been found in the past to present deviant MMPI profiles. This reasoning may help resolve this current inconsistency but it raises more serious questions about the acceptance of other MMPI profiles when the overall sample included 35 per cent black subjects.

There is an inconsistency also in the performance of this group on measures of institutional adjustment. Across indices they present a relatively favourable picture but when they do violate institutional rules the offences tend to be serious, including 20 per cent of the group having being involved in assaultive behaviour. Again, the inconsistency is resolved by reference to the racial composition of the group, the reasoning being that

racial tensions are likely to have contributed to the violence rate.

For treatment recommendations for Jupiter Megargee and Bohn acknowledge the differences between the MMPI profile and the collateral data. The profile indicates mental health needs but the collateral data suggests that their needs are no different from other non-disturbed groups. It is suggested, therefore, that the treatment setting will be determined by the nature of their criminal offences, but that they would be appropriate candidates for programmes designed to assist their chances of leading a lawful existence.

In studies of different offender populations, other investigators (e.g. Edinger, 1979) have confirmed the existence of the ten MMPI profile types identified by Megargee. This confirmation does not resolve likely weaknesses in the development of the typology and thus questions must be raised about its practical utility. These weaknesses refer to the initial choice of assessment instrument, the reliability of classification and the often ambiguous relationship between profile and collateral data.

The reasons for the use of the MMPI as the assessment instrument have been outlined previously. These reasons are acknowledged but it might still be doubted whether a psychiatric diagnostic instrument represented an appropriate instrument on which to develop a taxonomy of young offenders. These doubts are assuaged by the results of this and other studies (e.g. McGurk and McGurk, 1979) which have successfully identified normal profiles among MMPI data. In the current study, for example, the largest group comprising 19 per cent of the sample presented a normal profile. Another reservation about the use of the MMPI which is not so successfully dealt with refers to the racial composition of the sample. The authors remark that normal black subjects have been found to present deviant MMPI profiles but in a sample containing 35 per cent black subjects they proceed to define most groups according to profile. No group contains less than 26 per cent black subjects and should some of these subjects not be presenting true profiles

the lack of consistency between profile and collateral data for certain groups might be explained.

The classification of the sample of over twelve hundred profiles demonstrated that 63 per cent of the cases were uniquely classified. The remainder either met the criteria for two groups equally well or were unclassified. The vast majority of these cases were assigned by clinical judgement with less than 5 per cent of the sample not being ultimately assigned to a group. The clinical judgement was undertaken by Megargee but, in the absence of a second independent assessment, the reliability of this form of classification was not demonstrated. In defence of this situation it is argued that at the time of classification Megargee was the only person sufficiently well versed in the system to be able to assign profiles on the basis of clinical judgement. Further, reference is made to an unpublished study by Miller (1978) which showed that independent raters agreed on the allocation of 82 per cent of multiply classified cases in a sample of female prisoners. Despite this finding there remains the need for greater demonstration of the reliability of assignment based on the clinical assessment of profiles.

The relationship between the MMPI profiles and collateral data is ambiguous for some of the groups. In the case of Baker a benign profile is presented, yet these subjects are assessed by the personality test data and psychologists' evaluation as withdrawn, unassertive and socially isolated. In terms of institutional behaviour they are one of the most troublesome groups yet they record the best evaluations on scales of interpersonal adjustment. Similar inconsistencies, although in the opposite direction, are evident between the profile and collateral data for George. Their profile is more elevated than that of Baker but across dependent variables their level of interpersonal adjustment exceeds both that of Baker and that which would be expected from their profile.

In the case of inconsistency between profile and collateral data Megargee and Bohn stress that classification should be based solely on the

MMPI. Yet, on the basis of the collateral data they decide against combining groups with similar profiles. Foxtrot and Able presented similar profiles but the combination of these groups was decided against because "the collateral data showed them to be distinctly different types" (Megargee and Bohn, 1979, p. 195).

In an overall assessment of the work of Megargee and his colleagues the structured empirical approach to the development of a reliable and meaningful typology of young offenders has to be praised. The authors consider their efforts, which were designed to overcome the weaknesses of existing typologies, to have been highly successful but it is apparent from the foregoing that neither the reliability of classification nor the integrity of the identified types have been fully established. It could be argued that the vast array of dependent variables, with the differing reliabilities of assessment media, would be assured of producing less than congruent results for some types. However, the extent of differences between media represent serious weaknesses in the definition of some groups. In view of this the nonspecific general nature of the treatment prescriptions are hardly surprising. Moreover, of the ten groups three are not considered to have real treatment needs while the needs of another three are seen to lie in the field of mental health. The one reported use of the typology to assign individuals to different conditions refers to management rather than treatment initiatives (Bohn, 1978) and in this it will be seen that the essential selection decisions concerned less than 13 per cent of the inmate population.

(iv) In this country offender typologies based on MMPI profiles have been proposed by Blackburn (1971, 1975), McGurk (1978), McGurk and McGurk (1979) and Henderson (1982). Blackburn found four virtually identical personality groupings among 'abnormal' homicides (1971) and psychopaths (1975), each group having been diagnosed as 'mentally ill' under the terms of the Mental Health Act and contained in a maximum security special hospital. McGurk (1978)

replicated these findings with a sample of 'normal' homicides serving their sentences in penal establishments. McGurk identified five clusters, but two of them represented a sub-division of one of Blackburn's clusters. McGurk and McGurk (1979) found the same personality types in a random sample of prisoners not convicted of homicide. Henderson (1982) cluster analysed the scores of a mixed sample of prisoners - 72 per cent of the group were inmates selected for some form of psychiatric treatment - on eight general measures derived from the MMPI scale. Despite the difference in the measures analysed she found four clusters which bore a direct resemblance to those identified by Blackburn and McGurk.

There is no British MMPI-based typology of young offenders, but McGurk et al. (1981) report a typology based on the responses of young delinquents to three objective personality tests: the Hostility and Direction of Hostility Questionnaire (Caine, Foulds and Hope, 1967), the Psychological Screening Inventory (Lanyon, 1970) and the Sixteen Personality Factor Questionnaire, Form E (Cattell, Eber and Tatsuoka, 1970). Three hundred and fifteen subjects aged seventeen but under twenty-one serving a custodial sentence in a senior detention centre were administered these tests, and their responses were subjected to a cluster analysis using Ward's (1963) method from the computing package 'Clustan' (Wishart, 1974). This analysis, in common with that conducted by Megargee, led to the progressive reduction in the number of groupings based on the criterion of the smallest increase in within-groups variation. Also, in common with Megargee, the authors decided upon the number of groups present by adopting the cluster solution before that fusion leading to the first largest increase in within-groups variation.

The result of this analysis led to the adoption of a four cluster solution. The largest cluster contained 37 per cent of the sample and across tests they were intropunitive in terms of their hostility, shy, accommodating, trusting and tense. Tentatively they were labelled an Anxious group. The

second largest group contained 34 per cent of the sample and these subjects scored highest on extrapunitive hostility, were assertive, happy-go-lucky, suspicious, socially non-conformist and extravert. They were labelled Truculent but it is clear from their defining characteristics that, in common with types identified by other authors, they present a typically delinquent profile.

The third cluster contained 22 per cent of the sample and they presented the highest level of general hostility, were tense, anxious and unstable. They exhibited the most deviant responses and as their scores on some scales indicated a similarity in responding to psychiatric patients they were defined as Disturbed. The smallest group which comprised only 8 per cent of the sample, were less hostile than any other group, reserved, emotionally stable, controlled and relaxed. They exhibited fewer extreme scores than any other group and were labelled Normal.

These clusters have immediate theoretical significance and obviously overlap with the types proposed by other investigators but there is no assessment of the stability and reliability of the groupings. The stability of the clusters might have been assessed by applying different clustering techniques to the same data, by clustering random sub-sets from the sample or by eliminating a small number of variables and running the analysis again. These procedures might have shown whether the identified groupings were 'real' or simply artefacts of the particular technique used. Similarly, conducting the same analysis across different samples could have provided an index of the reliability of the groupings.

In defence of the authors their primary aim was not to develop a typology of delinquents but to compare identified types on the one dependent variable of recidivism. They did conduct a discriminant function analysis on the results of the cluster solution and this demonstrated that 86 per cent of the subjects could be correctly classified by the linear combination of variables found to be most discriminative of between-cluster differences. This

rate of correct classification based on statistical criteria rather than subjective clinical assessment suggests the promise of these assessment instruments for the unambiguous assignment of the vast majority of subjects to types. This promise, however, is dependent upon prior demonstration of the reliability and validity of the types and an equivalent rate of correct classification using the same linear combination of variables with different samples.

The subjects were followed-up for two years after their release from detention and the reconviction rates of the clusters were compared. This result will be described in more detail but the authors interpreted a statistically significant difference in reconviction across clusters as important in presenting support for the validity of the typology and in elucidating the relationship between personality and recidivism.

The young offender taxonomies reviewed, which range from typologies of three groups to Megargee's classification system of ten groups, vary considerably in their origin and nature. Despite this there are obvious similarities between groupings across typologies, the extent of these being highlighted in a cross-classification chart of the systems reviewed. This chart is presented overleaf and is confined to the psychological typologies reviewed, thus excluding Gibbons' role-career system which is based on patterns of offending.

In summarising the cross-tabulation chart it appears that five general classification bands cover twenty-seven of the thirty types identified across five taxonomies. The remaining three groupings could not be unambiguously assigned to any one band, but two of these types were labelled as immature. Each classification band includes types from at least three of the taxonomies and the Neurotic and Socialized Delinquent categories include equivalent groupings from all five systems.

CROSS-CLASSIFICATION OF THOSE PSYCHOLOGICAL TYPOLOGIES OF YOUNG OFFENDERS REVIEWED

GROUPING		WARREN	HEWITT AND JENKINS	QUAY	MEGARGEE	McGURK et al.
Asocial	I_2	Asocial aggressive	Unsocialized aggressive	Unsocialized-psychopathic	Delta	
	I_2	Asocial passive				
Neurotic	I_4	Neurotic acting-out	Overinhibited	Neurotic-disturbed	Baker George	Anxious
	I_4	Neurotic anxious				
Socialized Delinquent	I_3	Cultural identifier	Socialized	Subcultural-socialized	Able	Truculent
	I_3	Cultural conformist				
Antisocial/ Disturbed	I_3	Manipulator			Foxtrot Charlie How	Disturbed
Normal/ Situational	I_4	Situational emotional-reaction			Item Easy	Normal
Unclassified	I_2	Immature conformist		Immature-inadequate	Jupiter	

Previously Kinch (1962) and Warren (1971) have attempted to integrate offender typologies. Kinch reviewed fifteen typologies and extracted three types which, although described in different terms by different investigators, appeared to represent the same basic groups. These types were labelled Antisocial, Prosocial and Asocial and Kinch maintained they could be conceptualised according to the degree to which they adhered to both established values and delinquent norms. Those types are parallel to the Socialized Delinquent, Normal/Situational and Antisocial/Disturbed bands respectively of the current cross-tabulation.

Warren attempted to integrate sixteen typologies - only three of which had been reviewed by Kinch - and suggested six general categories of offender type, five of which are directly equivalent to the current cross-classification. The sixth category was labelled Conformist and offenders in this band are described as "concerned with power, searching for structure, dominated by the need for social approval, conforming to external pressure, rule-oriented, unable to emphasize, cognitively concrete, having low self-esteem, conventional and stereotyped in understanding, oriented to short-term goals, having superficial relationships with others, and self-representing as problem free" (Warren, 1971, p. 251). Warren admits to the problem of locating types in this classification band, suggesting an overlap between this category and that of Subcultural identifier, her equivalent to the Socialized Delinquent category in the present review. The heterogeneity of the above description would indicate a likely overlap with other categories also and should this be reflective of the problem of assigning individuals to groups within typologies it is likely to explain the general absence of this type in the taxonomies presently considered.

The consistency in the types identified across studies suggest that a reliable and meaningful sub-classification of offender populations is possible. Further evidence for this might be demonstrated in an assessment across systems of the proportion of offenders located in each classification

band. This would depend, however, upon greater similarity between the populations studied than was possible in the current review. Nevertheless, some of the typologies considered, although failing to meet all the evaluative criteria for classification systems, have facilitated the examination of between-subject differences in response to penal treatments.

Interactions between Regimes and Offender Types

To examine the corrective efficacy of penal treatments offender types have been assigned to a range of different conditions. The offender types have been classified by some of the systems described or by more immediate criteria. Less effort has been expanded on the development of typologies of treatment and particular conditions have been defined by variables relating to the correctional setting, the characteristics of the treater or the characteristics of special programmes.

The lead for the study of interaction effects between regimes and types of offender was provided by Grant and Grant (1959). They examined the effect of small group discussion and counselling on the post-discharge behaviour of military delinquents, the criterion of success being a return to military duty. A total of 511 subjects were rated for interpersonal maturity (Sullivan, Grant and Grant, 1957) and were then classified as high maturity (I-levels 4 and 5), or low maturity (I-levels 2 and 3). There was no distinction between sub-types within each I-level. Groups of high, low and mixed maturity level subjects were then assigned to three different conditions. Each condition represented a closed living group run by three supervisors, but the conditions were differentiated by the authors on the basis of their prediction of the effectiveness of the supervisors to "bring about a reduction in delinquency - prone attitude" (p. 131). It was found that the high maturity subjects did significantly better overall than the low maturity subjects. Also, the former group did better than the latter in

conditions where the supervisors were rated as likely to be most effective. This difference between the groups did not apply to the condition with supervisors predicted to be 'least effective'. The identified difference between the groups with supervisors predicted to be effective was not statistically significant, but the result is frequently quoted as presenting an empirical demonstration of interaction effects between regime conditions and offender types. Hood and Sparks (1970), in a review of the result, argue that this conclusion "is in fact, a non sequitur, and is not supported by the Grants' data" (p. 200-201). Nevertheless the work remains influential because of its consideration of interaction effects.

Adams (1961) reported a three year follow-up of youthful offenders aged 17-25 who had taken part in the Pilot Intensive Counselling study, a programme of individual therapy. Subjects were classified as 'amenable' and 'non-amenable' to treatment and both groups were randomly assigned to treatment or non-treatment conditions. Parole performance of the four sub-groups was compared and it was found that of the subjects rated amenable to treatment those in the experimental group did significantly better than those in the control condition in avoiding being returned to the institution. Furthermore, the treated non-amenable group did slightly worse, though not significantly so, than the non-amenable controls.

Jesness (1965) reported the Fricot Ranch experiment with young delinquents aged 8-14. The hypothesis tested was that residence in a 20-boy lodge would be a more effective socializing agent than residence in a 50-boy lodge. It was reasoned that the smaller units would facilitate both closer contact between boys and their housefather and stronger peer-group influences, which the author somewhat strangely considered as positive forces. Jesness developed an offender typology based on 103 items drawn from test scores, behaviour ratings, and interview and background data. Statistical analysis of the data produced fifteen factors and an inverse analysis then classified the subjects into eight groups.

A 15-month follow-up showed parole revocation rates to significantly favour those subjects located in 20-boy lodges. At the end of three years, however, the difference had become eroded as 80 per cent of each group had been returned to the reformitory. When success and failure was related to offender sub-groups it was found that three groups typed as 'neurotic-anxious' 'neurotic acting-out' and 'neurotic depressed' did better for the first year when released from 20-boy lodges. There were no differences between the other five groups when released from experimental and control conditions.

Other researchers have been even less successful in identifying differences in treatment outcome for different types of offender. Havel (1965), in an examination of intensive parole supervision in the community, classified parolees into high and low maturity groups while parole officers were classified according to whether they adopted an 'internal' (individual) or 'external' (situational) frame of reference. It was hypothesised that low maturity offenders would benefit from external supervision while high maturity offenders would do better under conditions of internal supervision. The criterion of failure was parole violation but the follow-up did not indicate any differences between the groups.

In this country Williams (1970) reported a random allocation experiment in which young offenders were sent to three borstals with different approaches to treatment. The first institution had a case-work regime, the second group counselling and the third was run as a traditional borstal. On a two-year follow-up there was a significant difference in the reconviction rates of the institutions with the case-work regime having a failure rate of 51 per cent and each of the other regimes 63 per cent. In a subsequent paper (Williams, 1975) the author considered interactions between the regimes and types of offender but reported that "each institution seemed to succeed with the same sorts of individual" (p. 39).

The Community Treatment Project represents the most extensive investigation of interactions between types of treatment and types of offenders. This project was conducted in three urban centres in California and has been described in a series of reports (Warren, 1964; Warren and Palmer, 1966; Palmer, 1964). Subjects were randomly allocated to an experimental group which received immediate parole and intensive supervision in the community or to a control group which spent some months in an institution before being released on parole under conditions of normal supervision. The intensive supervision for delinquents in the experimental group consisted of individualised attention in accord with the needs of the particular offender, counselling and assistance as necessary with areas such as school, work and accommodation. After allocation the subjects were classified according to their level of interpersonal maturity and unlike the research reported by Grant and Grant (1959) the subjects were assigned to sub-types within I-levels. Thus low-maturity subjects (I-level 2) were further divided into 'unsocialized aggressive' and 'unsocialized passive' sub-types; middle-maturity subjects (I-level 3) into 'immature conformist', 'cultural conformist' and 'manipulator' sub-types; and high-maturity subjects (I-level 4) into 'neurotic acting-out', 'neurotic anxious', 'situational emotional reaction' and 'cultural identifier' sub-groups.

The results of this phase of the project showed the experimental group to have markedly lower rates of parole failure than the control group, this finding being consistent over follow-up periods of fifteen and twenty-four months. The performance of the eight sub-types which could be compared across the experimental and control conditions - there were no 'unsocialized aggressive' delinquents in the experimental group - demonstrated that the 'neurotic acting-out' and 'neurotic anxious' sub-types did significantly better over both follow-up periods when in the experimental condition. This difference was identified also for the 'asocial passive', 'immature conformist' and 'cultural conformist' groups but in those cases the results

did not reach statistical significance. The initial promise of these results, however, is overshadowed by the comment from Warren et al. (1964) that "it has proved impossible to operate the programme without the experimental or control status of subjects being known" (p. 36). Moreover, subsequent reviewers have argued that a differential criterion of success and failure was applied to the experimental and control subjects (Empey and Erickson, 1972; Martinson, 1974).

In a later phase of the Community Treatment Project another intensive individual treatment was introduced, but within an institution. Project staff divided young offenders into two groups according to whether or not they were deemed in need of custodial care. Those for whom custody was considered necessary tended to be the more troublesome offenders. The subjects were further sub-divided with two of the derived groups being appropriately placed either in custody or in the community. The other two groups were inappropriately placed in either treatment option. On an eighteen-month follow-up (Palmer, 1974) 94 per cent of the subjects deemed in need of custody, but placed in the community, had reoffended compared with 58 per cent of those who had gone to an institution. Subjects for whom custody was not considered necessary did not do any better when released from an institution than from the community based treatment programme.

In a British study in which subjects were classified according to maturity level Sealy and Banks (1971) examined the recidivism rate of six sub-groups. These authors, following Sealy (1963), used the term "social maturity" rather than interpersonal maturity, and based on the peculiarities of their own classification system assigned subjects to six groups. These groups represented I-levels 2 to 4 but two of the groups, reflecting differences in results across assessment media, included subjects from more than one of the I-levels proposed by Sullivan, Grant and Grant (1957). There was a statistically significant difference across the groups in the number of successes and failures one year after release from a sample of open and

closed borstal institutions. The major contributions to this difference were the 59 per cent failure rate of subjects at the lowest level of maturity compared to a rate of 13 per cent for the most mature subjects. In a more detailed analysis of the interrelationship between individual institutions, social maturity and recidivism the borstals were classified into three types according to the average predicted success rate of their inmates as assessed by the Mannheim-Wilkins (1955) prediction formula. Amongst more general findings a significant difference was discovered in the performance of medium maturity subjects across the institutional classifications of 'low predicted success', 'moderate predicted success' and 'high predicted success'. On a one-year follow-up these subjects did significantly worse at borstals with a moderate prediction of success.

In the closest British equivalent to the Community Treatment the Home Office Research Unit investigated the operational feasibility and comparative success of Intensive Matched Probation and After-Care Treatment (IMPACT). Folkard et al. (1974) present a detailed discussion of the rationale of the experiment which involved assigning types of offenders to different forms of probationary supervision. The offender typology was derived from the two dimensions of 'criminal tendencies' and 'personal problems' while four forms of probationary supervision were achieved by combining categories from the treatment dichotomies of support and control and individual and situational intervention. This publication reported the operational feasibility of different forms of supervision for the Probation Service. A later publication (Folkard et al. 1976) evaluated the efficacy of intensive situational treatment with 'high-risk' offenders in four probation and after-care areas. Experimental and control groups were achieved in each area by a random allocation design and the subjects were compared on a one-year reconviction follow-up. The results failed to show a difference between the experimental and control groups but there was evidence of a differential treatment effect for offender types. The offender with moderate or high

criminal tendencies and a low personal problem score did significantly worse under intensive situational supervision than under normal supervision. Conversely, the offender with low criminal tendencies and a high personal problem score did better, though non-significantly, in the experimental condition.

The treatment typologies reported not only represent loose general options rather than operationally defined conditions, but are unrelated to suggestions about optimal treatment for different offender types. For example, Megargee and Bohn (1979) framed treatment recommendations, albeit loosely defined, for ten offender types but the one empirical application of the typology referred to less than 13 per cent of the inmate population. This was an attempt in an institution to reduce violence by introducing a classification system to separate those inmates most likely to be assaultive from those most likely to be victimised.

The first step involved using Quay's Correctional Adjustment Checklist and the MMPI typology to classify inmates as 'predatory', 'prey', or 'average'. Of the population of 563 in the federal correctional institution forty inmates were selected for the first group and thirty for the second group. Next, all the 'predatory' inmates were assigned to one dormitory along with average inmates whose characteristics and physical size suggested they could protect themselves. Similarly, the inmates classified as likely to be 'prey' were moved to another dormitory along with average inmates who were seen as unlikely to take advantage of them.

The assignment of subsequent receptions to dormitories was said to be based primarily on the MMPI typology as staff at the institution were unable to complete the Correctional Adjustment Checklist on inmates whom they had known for less than one week. It was remarked also that staff comments, criminal record, race and physical size were taken into account in the classification of subjects. The significance of these criteria is apparent from the comment that "most inmates in Group How were assigned to the latter

living unit (inmates likely to be victimised) since it was felt their instability and disturbance could lead to their exploitation; some members of How who were clearly aggressive went to the predatory dormitory" (Megargee and Bohn, 1979, p. 237).

Bohn (1978) evaluated the effects of the classification system by comparing the number of assaults in the first nine months of the operation of the system with the same nine months from the preceding year. There was a 46 per cent reduction in the number of assaults and there was a statistically significant difference in the distribution of assaults in the three dormitories before and after the change in assignment practice. Moreover, after the change all the assaults took place in the two dormitories housing the extreme groups.

It is acknowledged that this application of the MMPI typology, while achieving the goal of the reduction of institutional violence, is an inadequate test of its utility in guiding differential management and treatment decisions. To this it should be added that the classification system tested was not the MMPI typology of youthful offenders, but this system in conjunction with other variables some of which could have proved more critical. This question was not addressed and hence the utility of the MMPI classification system, even for the limited goal of reducing institutional violence, remains to be demonstrated.

Interaction effects between treatments or regimes and subjects have been examined by comparing the relative performance of different types after exposure to the same conditions. This methodology is less ambitious than the differential manipulation of both treatment conditions and subject variables, and does not resolve the nonspecific nature of treatment definitions, but it does permit consideration of the same general question. For example, McGurk et al. (1981) found a statistically significant difference in the reconviction rates of four personality types two years after their release from a detention centre. This difference was due to the lower reconviction rate of subjects described as Anxious. There was no difference between the

reconviction rates of the other three groups described as Normal, Disturbed and Truculent. A significant difference in age across clusters was discovered and hence a log-linear analysis was conducted to control for this influence while comparing the reconviction rate of Anxious subjects against the rest. With this effect controlled for the statistically significant difference remained.

This finding was not considered to be surprising as it was reasoned that "custodial regimes for young delinquents, particularly detention centre regimes which have often been described as providing a 'short, sharp shock', could be expected to have the strongest deterrent effect on anxious individuals (McGurk, McEwan and Graham, 1981, p. 163). There was mention, however of the possible alternative explanation that anxious subjects may reconvict at a lower rate irrespective of the nature of the regime experienced. Whatever, the results were taken to indicate that the most productive avenue for future studies in this area would be to concentrate on sub-groupings of delinquent samples. This is reasonable in view of the results but this prescription should be accompanied by the qualification that the long-term value of this approach is contingent upon prior demonstration of the reliability and validity of identified sub-groupings.

The present research is designed to follow the work of McGurk et al. (1981) to elucidate the competing explanations of an interaction effect between regime and type of offender or, alternatively, a generalized effect across regimes for one offender type. The work of Blackburn (1971, 1975), McGurk (1978), McGurk and McGurk (1979) and Henderson (1982) has indicated that highly similar sub-groups emerge from independent cluster analyses of the responses of different offender populations to the MMPI. This research involves giving the same battery of tests as McGurk et al. (1981) to young delinquents serving the three forms of custodial sentence for young offenders (aged under 21) administered by the prison department.

The sub-groups identified by a cluster analysis will be followed-up on release from their respective establishments to examine for interaction effects between type of regime and type of offender and, also, generalized effects across regimes. The results of the cluster analysis will provide some measure of the reliability of the groupings identified by McGurk et al. (1981), but attention will be paid also to the stability of the clusters and to the comparison of the types on a wider range of dependent variables than the limited measure of reconviction examined previously.

Summary

It has been argued that the equivocal findings on the relationship between personality and recidivism may be due to the neglect of within-sample differences. It is conceivable that positive effects for certain sub-groups have been masked by focussing on the results of total samples. Similarly, the failure of much correctional research to show empirical support for the efficacy of treatment methods may result from equivalent neglect from within-groups differences in response. Studies which have allowed for interaction effects between regimes and offenders have been quoted and the results of some of this work suggest its promise for future studies in the areas of the efficacy of treatment and personality and recidivism.

One recent British study (McGurk et al. 1981) described an offender type which reconvicted to a significantly lesser extent than three other types when released from a detention centre. This finding could be attributed to either a specific effect between regime type and offender type or to a general response of those subjects independent of regime variables. The current study seeks to conduct an empirical examination of these competing explanations.

Since the beginning of the present work a subsequent report on the relationship between empirically derived personality types and recidivism

has been published (McGurk, McEwan, McGurk, 1983). A cluster analysis of the responses of young delinquents serving a borstal sentence to the same battery of tests as in the previous study led to the adoption of another four cluster solution. There was no attempt to assess cluster stability, but three of the types identified - Normal, Disturbed and Truculent - were described in identical terms to those found in the earlier study. The fourth type defined as Withdrawn, only shared certain characteristics with the previous Anxious type. They were the only intropunitive sub-groups in their respective samples and were both shy and timid but the Withdrawn group did not score highly on scales measuring anxiety. In considering the identified similarities and differences between these groups, and the relative proportion of offenders placed in each type, the possibility was raised that it was the most highly anxious individuals who did not reconvict in the first study. This would explain both the reduced size (26 per cent $<$ 37 per cent) and the less anxious nature of the Withdrawn type in the slightly older and more criminally experienced second sample. Similarly, it was speculated that the smaller Truculent group identified (9 per cent $<$ 34 per cent) might be explicable in terms of the maturing of these individuals leading them to be represented in the Normal or Disturbed types, those groups with whom the Truculent subjects share common scoring patterns on certain scales.

A discriminant function analysis was conducted on the results of the cluster solution and this demonstrated that 96 per cent of the subjects could be correctly classified on the basis of personality data. The types were compared on intellectual, educational and criminological data but there were no differences except for the Truculent subjects having a statistically significant greater number of previous convictions than Withdrawn subjects. On a three year follow-up after release it was found that the Withdrawn type reconvicted to a significantly lower extent than the other types and that this result held when the influence of number of previous convictions

was controlled. This finding from a regime based on education and training led to the conclusion that "it is likely that individuals possessing certain of the personality characteristics of the Withdrawn and Anxious subjects in the respective samples will reconvict at a lower rate irrespective of the nature of the regime experienced"(McGurk, McEwan and McGurk, 1983, p. 169).

This conclusion suggests that Anxious subjects in the previous study were not deterred by the regime and, accordingly, it might appear to pre-empt the findings of the current research. The significant finding from McGurk et al. (1983), however, relates to a different though similar subject type from the earlier investigation. Research is still needed across sentences on the post-release behaviour of the same subject groups, with due attention being paid to cluster stability and the related question of the relative proportion of the sample located in different types. The present study achieves this objective across detention centre, borstal and young prisoner sentences. Moreover, while the findings of McGurk et al. (1981) and McGurk et al. (1983) refer to the simple index of a recorded conviction within different follow-up periods this research seeks to compare the empirically derived clusters on a range of indices of failure within a uniform follow-up period.

It has been recommended previously that the critical features of different regimes should be elicited by a range of analyses (Tizard, Sinclair and Clarke, 1975) but this scrutiny is not essential for exploratory studies of the relationship between personality and recidivism. Should it be consistently demonstrated that a specific effect occurs between a type of regime, described in general terms, and a type of offender then comparative analysis of the many components of the regime will be required to elicit the significant features which have contributed to the interaction.

CHAPTER THREE

METHOD AND PROCEDURE

Subjects

According to the Children and Young Persons Act (1969) young offenders are those aged 17 but under 21 years of age. It is with this group that the present research is concerned although a small number of subjects (<5 per cent of the total sample) fall within the Children and Young Persons Act classification of young persons, ie aged 14 but under 17 years of age.

The subjects were received between January 1980 and April 1981 into three establishments for young offenders, each establishment representing one of three types of custodial penal institution for young offenders administered by the Prison Department. These types are detention centres, borstals and young prisoner prisons.

Statutory provision for detention centres was made in the Criminal Justice Act (1948) to provide Magistrates' Courts and Crown Courts with a means to treat young offenders for whom a long period of residential training was not considered necessary. Their purpose was to give a 'short, sharp shock' to offenders and the first centre opened in 1952. However, as soon as nine years later it was being written that the deterrent function of detention centres had become eroded by humanitarian considerations and reformist ideals (Chief Justice, Lord Parker; Daily Telegraph, 13th January 1961). The dilution of the original deterrent function has doubtless continued but detention centres still represent the strictest form of regime available for incarcerated young offenders. There are junior centres for offenders aged 14 and under 17 and senior centres for those aged 17 and under 21, both tending to be used by the courts for persistent offenders who have

not been deterred by non-custodial penalties. Those sent to senior detention centres may receive sentences of 3 months or 6 months, each attracting automatic one third remission on good conduct for the duration of the sentence.

Borstals have a much longer history dating back to the Gladstone Report of 1895 and the opening of the first institution in 1902. Their original role was to provide a training measure for teenagers when they were seen to be developing delinquent tendencies. The training aim has remained central despite changes in population. The Criminal Justice Act (1961), for example, had the effect of changing the Borstal population by restricting the powers of the court to sentence offenders aged under 21 to imprisonment. The current borstal sentence is indeterminate but not less than 6 months nor more than 2 years. The progress of inmates is reviewed regularly with release dates being determined by their performance on fixed criteria such as disciplinary and work reports. This sentence is not usually used by the courts for first offenders but for offenders for whom non-custodial measures and the shorter detention centre sentence have failed. Offenders may be 15 and under 21 but the vast majority of receptions are at least 17 years of age.

It is part of official policy that young offenders should be kept separate from prisoners over 21 and thus special young prisoner (YP) institutions exist to accommodate them. This sentence is generally used for those for whom non-custodial, detention and borstal sentences have failed and regimes bear a closer resemblance to those for adult prisoners than to detention and borstal regimes. Following the Criminal Justice Act (1961) young prisoners cannot be sentenced to more than 6 months or less than 3 years except in those cases where they have served a previous YP sentence.

The subjects in the present study were serving detention centre

sentences at HM Detention Centre, Medomsley; borstal sentences at HM Borstal, Deerbolt; and young prisoner sentences at HM Young Offender Prison, Castington. The detention centre sample were received into the institution directly from the court. The borstal subjects, after sentence, went to an allocation centre from where they were sent to Deerbolt. The young prisoners, after sentence, were received into young offender remand centres - which contain some convicted prisoners - and adult local prisons with YP wings before being allocated to Castington. Certain subjects in all groups also spent periods in custody on remand before being sentenced. Table I below presents details of the ages, current sentences and criminal backgrounds of the samples.

Since the completion of the research the Criminal Justice Act (1982) has provided a new framework of custodial sentences for offenders aged under 21. Detention centre sentence remain, but with different statutory minimum and maximum sentence lengths while borstal and young prisoner sentences have been merged to form a new 'youth custody' sentence.

TABLE I

Composition of Three Samples of Young Offenders

	Current Sentence		
	Detention Centre	Borstal	Young Prisoner
No. Subjects Tested	125	146	73
Mean Age (years)	18.13	18.53	19.51
Mean No. Previous Convictions	3.26	5.89	7.60
Mean Length of Current Sentence (months)	3.21[a]	9.23[b]	6.63[a]

	Previous Sentences (expressed as % age of subjects in group)		
	Detention Centre	Borstal	Young Prisoner
Absolute/Conditional Discharge	33.6	41.3	46.6
Fine	72.0	75.6	74.0
Attendance Centre	23.2	30.2	31.5
Supervision Order	27.2	37.5	47.9
Care Order	16.8	25.9	24.7
Probation Order	18.4	26.7	26.0
Community Service Order	12.8	13.7	27.4
Detention Centre	5.6	45.3	60.3
Borstal	0	45.3	56.2
YP Sentence	0.8	22.1	27.4

a attracting one third remission on good conduct

b actual sentence served

General Procedure

Heskin et al. (1973) and Belson (1975) obtained the co-operation of prisoners and offenders by reassuring them that the work was for a university and hence was independent of prison and police authorities respectively. The present research could not follow this practice as the tests were administered by a Home Office employee, a psychological assistant without a professional qualification in psychology but with special training in methods of psychological assessment.

To obtain the co-operation of young offenders McGurk's (1977) suggestion of relying on the routinization of tasks within prisons was adopted. Young offenders received into the experimental institutions are routinely administered tests of literacy and numeracy specially designed for use in

prisons and the results of this assessment, together with information obtained in interview, facilitates their allocation to educational and trade training courses. For the present research receptions into the three institutions were administered the tests of literacy and numeracy followed by the tests to be used in the research. Subjects were informed that the additional tests were to measure their views and opinions for a research project, and that the information gained would be completely confidential and protected from members of prison staff. A high level of co-operation was facilitated by these instructions and subjects' perception of the test administrator as a visitor to the institution.

Test sessions were conducted in small groups (N = 12), in the absence of prison staff, during the induction period of subjects in the institutions. All receptions were administered the literacy and numeracy tests for institutional purposes but the personality tests were administered only to those subjects who demonstrated a minimum reading age of 10.0 years. This resulted in an exclusion rate of less than 10 per cent.

The personality tests were administered in the following order : The Hostility and Direction of Hostility Questionnaire (HDHQ : Caine, Foulds and Hope, 1967), the Psychological Screening Inventory (PSI : Lanyon, 1973) and the Sixteen Personality Factor Questionnaire, Form E (16PF : Cattell, Eber and Tatsuoka, 1970).

Further information on subjects was gained from inspection of their prison records which contain data on domestic circumstances, employment history, previous offences and sentences and current offence.

Description of the Measuring Instruments

(a) Hostility and Direction of Hostility Questionnaire (HDHQ)

The HDHQ consists of five 'tests' which represent a deliberate contrast to unidimensional measures with conjunctive scales. In accord with psychoanalytic theory it is reasoned that concepts such as displacement activity, symptom substitution and sublimation may lead to basic drives being expressed in different ways. Traditional methods of test construction which emphasize the unidimensionality of constructs are therefore insensitive to some or all modes of manifestation of the drive. Hence the construction of the HDHQ "to sample a wide, though not exhaustive, range of possible manifestations of aggression, hostility or punitiveness" (Caine, Hope and Foulds, 1967, p. 5).

The HDHQ was developed from the Extrapunitive and Intropunitive Scales (Foulds, Caine and Creasy, 1963). This earlier instrument borrowed the terms "intropunitive" and "extrapunitive" from Rosenzweig (1934) and items from the MMPI were used to construct five scales which consisted of two measures of intropunitiveness and three of extrapunitiveness. Hope (1963) performed principal components analyses of the scores of normal and neurotic samples on the five scales and found similar results for each sample with the first two principal components accounting for 70 per cent of the variance. All five scales loaded in a positive direction on the first principal component which was assumed to be a measure of general hostility. The second principal component contrasted the two intropunitive with the three extrapunitive scales and was considered to measure direction of hostility, i.e. whether likely to be directed against the self or others.

Following the work of Hope the Extrapunitive and Intropunitive Scales was superceded by the HDHQ with the authors using the term 'tests' for the scales used to compute general hostility and direction of hostility. The first principal component from the tests was validated by the method of criterion groups whereby it was demonstrated that psychotics, neurotics and

normals were in the expected descending order of general hostility. The method of criterion groups suffers, first, in that it does not permit the calculation of a validity coefficient while, second, the criterion variable may be confounded with other correlated variables. For the validation of the second principal component the latter restriction was avoided by modifying the criterion groups method. Paranoid and melancholic clinical patients were subdivided into "selected" and non-selected cases - "selected" subjects having a purer history of their illness - and compared with other groups on direction of hostility. The authors predictions were realised and selected cases recorded more extreme scores in the expected direction than non-selected cases. The one finding to confound prediction was that the normal group were more extrapunitive than neurotics.

The HDHQ has been used to discriminate successfully between the following groups; moderately assaultive and extremely assaultive psychiatric offenders (Blackburn, 1968), amphetamine takers and non-users of the drug (Cockett, 1969) and between the four personality types identified among abnormal homicides (Blackburn, 1970). McGurk (1970) tested the hypothesis that offenders against the person would record higher scores on general hostility and be more extrapunitive than property offenders. The results were in the predicted direction but were non-significant. In a study of long-term prisoners Crawford (1972, 1977) related HDHQ scores to variables including offence-related data and behaviour in prison. Amongst a plethora of non-significant results he discovered a statistically significant positive relationship between general hostility and number of violent criminal offences. This finding, however, was dismissed by the author as he pointed out that over 25 per cent of prisoners with no violent offences have above average hostility scores while over 25 per cent of prisoners with two or more violent offences have below average hostility scores. In support of Crawford's

interpretation it might be added that real differences between violent and non-violent subjects on general hostility could be expected to be repeated on direction of hostility. This was not the case and in summary of more general findings Crawford (1977) argues that "the inability of the HDHQ to differentiate violent from non-violent individuals must cast doubt on its validity as a measure of hostility" (p. 393).

Davies and Thornton (1975) conducted a validity study of the HDHQ using Extrapunitive (EH) and Intropunitive (IH) totals. This followed Philip's (1973) demonstration from the results of factor analysis that the individual tests of the HDHQ are best summarised by EH and IH rather than by the traditional scores of general hostility and direction of hostility. Davies and Thornton formed criterion groups based on three constructs which they considered to be assessed by EH and IH. High and low scoring groups on the constructs were contrasted on the extrapunitive and intropunitive totals and "the results support the validity of the HDHQ rather well" (p. 6). The totals distinguished only the predicted groups.

The present research sought to apply the five individual tests and the two composite scales as directed in the HDHQ manual. The five individual scales are Urge to act out hostility (AH); Criticism of others (CO); Projected delusional hostility; Self-criticism (SC); and Guilt (G). This application of the test had the advantage of following the practice of McGurk et al. (1981) and McGurk et al. (1983). Moreover, in those studies the individual tests of the HDHQ were found to be highly discriminative of the identified sub-groups.

(b) <u>Psychological Screening Inventory (PSI)</u>

The PSI was developed in the United States to provide a brief routinely administered screening device for use in health and social service settings. It comprises five scales which, in the view of the author (Lanyon,

1970, 1973) represent the most useful combination given the aim of the test. The PSI was designed for use by non-psychologist personnel and thus non-technical names were chosen for the scales in order to minimise possible misinterpretation of results. These names deliberately underplayed the pathological content of the five scales.

The scales are: Alienation, which is designed to indicate the similarity of the respondent to hospitalized psychiatric patients; Social Nonconformity, which assesses similarity in responding to incarcerated prisoners; Discomfort, essentially a measure of neuroticism; Expression, which measures extraversion or undercontrol; and Defensiveness which indicates the respondent's test-taking attitude.

The scales were validated using a combination of the criterion groups method and the even more suspect method of validity coefficients generated by an internal consistency procedure. The limitations of the criterion groups methods have been discussed in the previous section. The validity coefficients generated demonstrated simply that a preliminary scale score correlated with individual items from that scale and not with items from other scales. Between these methods, therefore, there is an absence of scale validation against measures of the constructs to which they relate. Support for the validity of the PSI may be found, however, in studies comparing it with Eysenck's tests.

The Psychoticism, Extraversion and Neuroticism (PEN) Inventory (Eysenck and Eysenck, 1968) measures these factorically derived dimensions of personality and superficially there would appear to be similarity between PEN Psychoticism and PSI Alienation, PEN Extraversion and PSI Expression, PEN Neuroticism and PSI Discomfort. Mehryer et al. (1975) examined the relationship between the PSI and the PEN plus a Lie scale taken from an earlier test of Eysenck (the Eysenck Personality Inventory : Eysenck and Eysenck, 1964b). It was considered that this extra scale should measure

essentially the same dimension as PSI Defensiveness. A factor analysis of the responses of American students to both tests resulted in a three factor solution and the authors concluded that the PSI and the PEN measured similar aspects of personality.

In a later British study McGurk and Bolton (1981) examined the relationship between the PSI and the Eysenck Personality Questionnaire (EPQ : Eysenck and Eysenck, 1976) which includes the same dimensions as the PEN plus a Lie scale and a composite scale labelled Criminal Propensity. Both tests were administered to groups of delinquents and technical college students their being matched on age and socioeconomic status. The responses of each group were factor analysed and although the factor structure does not replicate that of Mehryer et al. it was found that moderate to high correlations existed between Expression and Extraversion and Discomfort and Neuroticism. Low, though significant correlations, were found between Alienation and Psychoticism, Social Nonconformity and Criminal Propensity and the Defensiveness and Lie scales. It is concluded by the authors that "the EPQ and PSI are measuring somewhat different aspects of psychiatric disturbance, antisocial tendencies and test-taking attitude, respectively" (p. 878).

Further support for the validity of the PSI comes from studies which have examined the effect of test-taking attitude on responses to the test. Pulliam (1975) found social desirability to account for relatively little variance in responding to the PSI. Also, he found a significant correlation between social desirability and the Defensiveness score on the PSI and this was interpreted as providing limited evidence for the validity of that scale. Gayton et al. (1973) studied the effects of faking instructions on the PSI and believed the Defensiveness scale to show good promise in detecting faking. The results identified a higher percentage of subjects who were faking than were identified in Lanyon's (1970) normative study.

The PSI has been used to produce mean profiles of psychiatric inpatients classified according to the International Classification of Diseases (Csapo, 1975) and the Social Nonconformity and Expression scales have even been used to discriminate between problem and non-problem denture patients (Ismail and Kruper, 1975). It has been incorporated into the present test battery to follow the previous work in which the scales were found to assist the successful discrimination of meaningful sub-groups.

(c) Sixteen Personality Factor Questionnaire (16PF)

The personality theory of Cattell (1946, 1947, 1950, 1957) is important in that it seeks to identify the basic dimensions of personality and to develop assessment devices to measure those basic dimensions. It is a structural theory of which the basic element is the trait. Traits are divided by Cattell into surface traits and source traits. The former reflect behaviours which relate on a superficial level but not beyond the level of observed behaviour while source traits refer to associations among behaviours which vary together to reflect a common origin. Surface traits may be identified by subjective methods but the complicated statistical technique of factor analysis is necessary for the discovery of source traits. Cattell thus shares with Eysenck the methodology of the factor analytic approach in the study of personality.

Within the shared methodology Cattell and Eysenck differ in their interpretation of the level of the most meaningful conceptual unit produced by factor analytic techniques. Cattell emphasises the importance of primary factors (traits) whereas Eysenck opts for second-order factors with their greater level of inclusiveness (types). The sixteen primary factors produced by Cattell reduce to two major and six minor second-order factors but he argues that "it is a mistake generally to work at the second level only, for

one certainly loses a lot of valuable information present initially at the primary level" (Cattell, Eber and Tatsuoka, 1970, p. 111-112). Eysenck (1972), on the other hand, contends that "second-order factors are far more meaningful psychologically and that little if any information is lost by disregarding the primaries" (p. 265). The difference in the number of factors identified by them may reflect nothing more than the different factor analytic techniques applied to their data. Moreover Cattell's two major second-order factors of invia-exvia and adjustment-anxiety resemble closely Eysenck's higher-order factors of introversion-extraversion and neuroticism respectively.

The sixteen primary dimensions of personality proposed by Cattell have been isolated by over twenty years research on normal and clinical groups. The research has included behaviour ratings, questionnaires and personality inventories and it is concluded that "the results do not leave any doubt about the behavioural generality of factors found in different media" (Hundleby, Pawlik and Cattell, 1965, p. 327). This conclusion is disputed by other psychologists who have found that factors identified by different media do not relate well (Bouchard, 1972; Skinner and Howarth, 1973).

Cattell has constructed and developed the Sixteen Personality Factor Questionnaire (16PF) to assess the primary dimensions of personality but the question of proper tests of its psychometric adequacy has been disputed. Indices of test reliability are an important criterion of the adequacy of objective psychometrics and one such index is the internal consistency (statistical homogeneity) of scales, this being assessed usually by the alpha reliability coefficient (Cronbach, 1970). Yet, in the case of the 16PF Levonian (1961) and Howarth et al. (1972) both report that the scales are heterogeneous, using as their criterion the numbers of significant correlations between items from different scales. This criticism is countered

by Cattell (1973) who argues against the use of internal consistency measures in the evaluation of multifactor batteries. As more valid indices of psychometric adequacy he proposes the maximisation of validity (scale-factor correlation), factor trueness (scales should not be contaminated by variance from unwanted common factors) and transfer reliability (scales should be valid across different samples). To emphasise this difference in evaluative criteria Cattell et al. (1970), in an earlier publication, draw the analogy between factor scales and clocks, arguing that we should be concerned less with internal workings (internal consistency of scales) and more with the final result (scale-factor correlation). Otherwise expressed, validity supercedes conventional intra-scale measures of reliability in testing the adequacy of the instrument.

The recent results of Saville and Blinkhorn (1981) suggest that this difference in approved methods of test validation is a less critical issue than previously considered. They reviewed recent research on the 16PF and sought to contrast conventional indices of psychometric adequacy with those proposed by Cattell. On the question of scale homogeneity they contrasted alpha reliability coefficients with alternate form reliabilities for Forms A and B of the test. Contrary to prediction from Cattell alternate form correlations were not larger than internal consistency correlations. The different measures were almost identical and the authors found the majority of scales to have entirely acceptable alpha coefficients In summary of more general findings Saville and Blinkhorn state that "routinely available psychometric indices tell a perfectly sufficient story for practical purposes, and furthermore a story which is so much in accord with Cattell's own published (though not adequately documented or interpreted)findings " (p. 333).

The 16PF has been used to make successful discriminations between various normal (Donnan and Harlan, 1968), clinical (Cattell, Kombos and

Tatso, 1968) and criminal groups (Cowden, Schroeder and Peterson, 1971). It has been included in the test battery for the present research for the same reasons as the HDHQ and PSI. In common with McGurk et al. (1981) and McGurk et al. (1983), Form E of the test was used. This form, designed to minimise confusion in subjects of limited educational and cultural background, was considered the most suitable version in view of the backgrounds of many young offenders (West, 1967; West and Farrington, 1973).

Brief descriptions of the sixteen bipolar personality factors assessed by the test are presented below:

FACTOR A

RESERVED, Detached
Critical, Cool

OUTGOING, Warmhearted
Easy-going, Participating

FACTOR B

LESS INTELLIGENT,
Concrete-thinking

MORE INTELLIGENT,
Abstract-thinking, Bright

FACTOR C

AFFECTED BY FEELINGS,
Emotionally Less Stable,
Easily Upset

EMOTIONALLY STABLE,
Faces Reality, Calm,
Mature

FACTOR E

HUMBLE, Mild,
Accommodating, Conforming

ASSERTIVE, Independent
Aggressive, Stubborn

FACTOR F

SOBER, Prudent,
Serious, Taciturn

HAPPY-GO-LUCKY,
Impulsively Lively, Gay

FACTOR G

EXPEDIENT, Evades Rules,
Feels few Obligations

CONSCIENTIOUS, Persevering,
Staid, Rule-bound

FACTOR H

SHY, Restrained,
Diffident, Timid

VENTURESOME, Socially-
bold, Uninhibited

FACTOR I

TOUGH-MINDED,
Self-Reliant, Realistic

TENDER-MINDED, Dependent
Over-protected, Sensitive

FACTOR L

TRUSTING, Adaptable
Easy to Get on With

SUSPICIOUS, Self-opinionated
Hard to Fool

FACTOR M

PRACTICAL, Careful,
Conventional Regulated
by External Realities

IMAGINATIVE, Wrapped
up in Inner Urgencies,
Careless of Practical Matters

FACTOR N

FORTHRIGHT, Natural,
Artless, Sentimental

SHREWD, Calculating,
Worldly, Penetrating

FACTOR O

PLACID, Self-Assured
Confident, Serene

APPREHENSIVE, Worrying
Depressive, Troubled

FACTOR Q1

CONSERVATIVE, Respecting
Traditional Ideas

EXPERIMENTING, Critical,
Liberal, Analytical

FACTOR Q2

GROUP DEPENDENT
A 'Joiner', Sound Follower

SELF-SUFFICIENT, Prefers
Own Decisions, Resourceful

FACTOR Q3

UNDISCIPLINED SELF-CONFLICT,
Careless of Protocal, Follows
Own Urges

CONTROLLED, Socially-precise,
Following Self-Image

FACTOR Q4

RELAXED, Tranquil
Unfrustrated

TENSE, Frustrated,
Driven, Overwrought

The Cluster Analytic Development of an Empirical Typology

Offender typologies have been founded on different taxonomic models. Examples quoted in the last chapter included heuristic typologies

based on levels of psychological maturity and empirical typologies derived from applying mathematical techniques to psychological data. These techniques included factor analysis of behavioural ratings (Jenkins, 1946; Quay, 1964) and the division of samples into like-scoring clusters on the basis of scores on personality psychometrics (Blackburn, 1971; McGurk, 1978; McGurk et al., 1981). In the case of the latter method over one hundred clustering algorithms have been proposed and different algorithms have been found to produce different results when applied to the same data (Williams, Lambert and Lance, 1966; Gower, 1967).

Within each algorithm the range of choice is extended. Having selected the variables to be measured it has to be decided whether the analysis should be conducted across all the individual variables. The alternative is to conduct a principal components analysis and to use the first few principal components scores as input variables to the clustering process. Bartko et al. (1971) adopted both methods and found very different results between a cluster analysis of 48 variables and a cluster analysis of the first nine principal components computed from the variables.

Another option is whether scores on variables should be standardized before clustering. This prevents associations between subjects being biased towards those variables which have large variances. Standardization can have the effect of minimising differences between groups on variables which are the best discriminators between them (Fleiss and Zubin, 1969) but Wishart (1978) recommends that "in almost all problems involving continuous data the variables should be standardized before the population is classified" (p. 14). Moreover, Edelbrock (1979) reports higher accuracies for standardized than unstandardized data sets in solutions in which higher numbers of the total sample (95 to 100 per cent) are allocated to clusters. In solutions with lower levels of coverage the accuracy functions were almost identical.

The majority of clustering techniques begin with the calculation of a similarity or distance matrix between subjects. Several measures of similarity have been adopted but for quantitative variables the most commonly used has been the product moment correlation. This measure, while sensitive to similarity in profile shape, is insensitive to profile elevation. It has been criticised by several writers including Eades (1965) and Wishart (1971), the latter suggesting that it should no longer be applied as a measure of similarity.

In a Monte Carlo test of cluster analysis - the examination of the relative efficacy of different cluster techniques in recovering clusters among artificially generated data sets with known cluster structure - Strauss et al. (1972) report the successful use of the correlation coefficient in the analysis of psychiatric data. This measure led to the complete recovery of the five groups in the artificial data set whereas the Euclidean distance measure failed to recover the groups successfully.

Blakith and Reyment (1971) comment that the choice between correlations and distances in clustering is difficult but Everitt (1980) believes the balance of evidence to favour distances. Euclidean distance, unlike the correlation coefficient, is sensitive to both profile shape and elevations on scales. Distance measures do suffer from the problem of the different scales of individual variables but this may be overcome by standardizing scores. In certain situations, however, the correlation coefficient has the advantage over distance measures in that it can deal conjunctively with binary, qualitiative and quantitative variable types (Gower, 1971).

Essentially the choice between the correlation coefficient or the distance metric relates to the clustering algorithm to be adopted. Cormack (1971) listed five general classes of clustering techniques but the main focus of research interest concerns the one class of 'hierarchical techniques'

(Edelbrock, 1979; Milligan, 1981). Monte Carlo validation studies of hierarchical clustering algorithms have indicated that Ward's (1963) minimum variance method gives the best recovery of cluster structure (Kuiper and Fisher, 1975; Blashfield, 1976; Mojena, 1977). This is questioned by Milligan (1981) who argued that other algorithms may provide better recovery rates under specified sets of conditions. These conditions refer to the initial selection of the similarity or distance measure, the treatment of outliers between clusters and the extent of cluster overlap.

Kuiper and Fisher (1975), Blashfield (1976) Mojena (1977) and Bayne et al. (1980) all found the best recovery rates using a Euclidean distance measure with Ward's method. Edelbrock (1979), Edelbrock and McLaughlin (1980) and Blashfield and Morey (1980) used the product moment correlation with the group average hierarchical method of clustering (Sokal and Michener, 1958) and found recovery rates equivalent to those of Ward's method.

The results reported by Kuiper and Fisher, Blashfield and Mojena in favour of Ward's method required total coverage of subjects. Studies which have not required total coverage have found the group average method to provide results equal to Ward's method (Edelbrock, 1979; Milligan, 1980). In contrast, Bayne et al. (1980) deleted outliers from the sample and found Ward's method to be superior whilst, in a study requiring total coverage, Milligan and Isaac (1980) found in favour of the group average method.

The third condition refers to the question of cluster overlap. The extent of cluster overlap in one study has been assessed by discriminant function analysis (Kuiper and Fisher) and more generally it has been found that results in support of Ward's method have come from situations with cluster overlap. Results in support of the group average method have come from studies which generated data without cluster overlap. Edelbrock and McLaughlin reappraise Mojena's data and report that as the extent of cluster

overlap increases the difference in mean recovery values between Ward's method and the group average method increases in favour of the former.

Ward's method is only valid with distance measures and in the light of validation studies conducted it is difficult to argue with Wishart's (1978) assertion that it represents "possibly the best of the hierarchy options" (p. 33). This assertion assumes even greater significance in situations where total coverage is required and where cluster overlap is likely.

Jardine and Sibson (1968) object on mathematical grounds to all agglomerative hierarchical clustering options except the single link method (Florek et al., 1951). They set conditions for hierarchical data transformations and argue that the single link method is the only agglomerative hierarchical technique to satisfy every condition. Williams et al. (1971) and Gower (1975), however, question the need for clustering algorithms to meet all of the criteria established by Jardine and Sibson for acceptable hierarchical data transformations. In a standard text on cluster analysis Everitt (1980) agrees with Williams et al. and Gower and states that "it seems more reasonable to adopt a pragmatic approach than to restrict investigators solely to the use of the mathematically acceptable single linkage method" (p. 100-101). Everitt proceeds to warn against ready acceptance of any cluster grouping and advocates a cautious analysis of the final solution. He recommends also a number of checks to be applied to any solution. First, differing techniques should be used and if similar results are produced closer investigation of the solution is merited. Second, after obtaining a cluster solution the data should be divided evenly with cluster analyses being performed on each subset. The subsets should demonstrate similar solutions to the analysis performed on the entire sample. Third, deletion of a small number of variables from the clustering should not produce a more than marginally differing result to the original groupings.

Finally, differences between clusters should be apparent on variables not included in the analysis.

Following the procedure of McGurk et al. (1981) and McGurk et al. (1983) the raw scores of the subjects on the HDHQ, PSI and 16PF were standardised and cluster analysed using Ward's method from the computing package 'Clustan' (Wishart, 1978). This method, in which clusters are based on a minimum variance criterion, had the singular benefit of following the previous research. More important, in view of the reported Monte Carlo experiments, it represented the optimal technique for the analysis of psychometric data in a situation requiring total coverage with likely cluster overlap.

The technique is based on a distance function which is the sum of the squared deviations of two series of scores. The smaller the value of the function the greater the similarity of the profiles. Initially the pair of subjects having the greatest similarity is found, giving n-1 groupings from n subjects. The number of groupings is progressively reduced until only one cluster, the total sample, remains. At each stage in the sequence of fusions union of every possible pair of clusters is considered and the two clusters are combined whose fusion results in the smallest increase in the total within-groups variation. This increase is represented at each stage by an error term.

Deciding upon the particular cluster solution to adopt presents the investigator with a further series of options. Beale (1969), Marriot (1971) and Calinski and Harabasz (1974) suggest the application of different mathematical criteria to determine the number of groups present but Everitt (1980) believes "the problem is in fact incapable of any formal solution ..... because there is no universally acceptable definition of the term cluster" (p. 66). Everitt suggests the investigator should consider different levels of classification before deciding upon the number of groups present. This

reflects the earlier view of Gnanadesikan and Wilk (1969) who argue that simplicity is important and that fixed mathematical criteria are inappropriate indices for deciding the number of groups present.

Williams and Dale (1965) recommend that the identification of clusters be carried out qualitatively and Glen et al. (1973) advocate combined examination of the error term and interpretability of the emergent profiles. The present research adopted Everitt's (1974) recommendation that large changes in the error term represent the best index of the number of groups present in hierarchical clustering techniques. The largest change occurs most frequently at the fusion of the final two clusters and therefore the particular criterion adopted was the first large change in the error term.

The Measurement of Reconviction

Almost invariably the effectiveness of sentences is assessed by the post-discharge behaviour of subjects, the most frequently applied index being reconviction. This holds true despite the warnings expressed by Walker (1971) and Tittle (1974) about the efficacy of the measure. These warnings have been outlined previously.

Acceptance of reconviction information as a valid measure of sentence effectiveness raises a number of important issues. The first concerns Type II errors,or false negatives, which occur when a subject is classified as a nonrecidivist when he did in fact commit a crime. McClintock and Gibson (1961) suggested that the low reconviction rate of men convicted of robbery might indicate a talent for escaping detection. West (1963) reported that forty per cent of the men who had apparently gone straight for four years or longer admitted undetected offences. The significance of Type II errors is critical for the evaluation of regimes but is minimised by the effects of randomization in between-groups designs.

The simplest and most common measure of reconviction refers to the presence of a recorded conviction within a specified period. However, some investigators have considered this too crude an index and have developed wider criteria of success and failure. Glaser (1964), for example, distinguished between 'clear' and 'marginal' groups among both successes and failures. 'Clear reformation' subjects, after being on parole for one year, had regular employment and were avoiding criminal associates while 'marginal reformation' subjects, though not returned to prison, had failed to keep regular employment or had committed minor offences. 'Marginal failures' and 'clear recidivists' were both returned to prison, the former for minor crimes or violations of parole and the latter for serious offences. Prior to this Rose (1954) had adopted the labels 'occasional' and 'habitual offenders' but these taxonomies, whilst descriptively meaningful, do not afford the ready classification of subjects.

Vasoli (1967) suggested a composite measure of recidivism to include reconviction data and subjective non-criminal information and, more recently, Repucci and Clingempeel (1978) argued that recidivism as a measure of post-institutional adjustment should be supplemented by measures of adjustment in other areas such as education, employment and family life. In the case of recidivism they recommend that "measures should be based on multiple gradations of such factors as extent of contact with the criminal justice system, frequency of law-violative behaviour, and type and seriousness of offence" (p. 742). In agreement with this the present methodology seeks to progress beyond the simple dichotomy of success and failure to compare the identified types on time to reconviction, sentence received and subsequent offences committed should the first sentence received be non-custodial.

The length of follow-up period for reconviction differs across reported studies but Brody (1976) suggests that evidence from both sides of

the Atlantic indicates that the majority of offenders who are going to be reconvicted will do so within two years. Walker (1971) states the rule that the higher the percentage of first offenders in the sample the longer the follow-up should be. Conversely, the more criminal the sample the shorter the follow-up period. Walker points out also that reconviction rates for the first year should indicate whether a longer follow-up is likely to produce substantial between-groups differences.

The subject types identified by the cluster analysis of personality data in the present study were compared on the indices of reconviction one year after release. Subjects not reconvicted within this period and those reconvicted but receiving non-custodial sentences were followed-up for longer periods and the personality types within each group were compared on the same indices. Reconviction information was obtained from Criminal Records Office at New Scotland Yard, a source which has been demonstrated to present a reliable index of all recorded indictable crimes (Steer, 1973).

The personality types identified were compared also on the following variables: age; number of previous convictions; type of offence for which the current sentence was given; and if reconvicted, type of offence on reconviction. Offences were coded according to their presence or absence in nine a priori categories including for example, dishonest against the person, dishonest against property, disorderly against the person and offences involving motor vehicles. These categories have been used previously by McEwan (1983) as a variant to a model proposed by McGurk (1970) and Curran (1971).

CHAPTER FOUR

RESULTS

Definition and Validation of the Cluster Solution

Examination of the error terms generated by the cluster analysis showed the first large change to occur between the five cluster and the four cluster solution. The fusion of five into four clusters led to an increase of 5.87 in the error term, which was almost four times the previous largest increase (1.52). Hence the five cluster solution was adopted. Appendix A shows the increase in the error term produced by the final twenty fusions of the hierarchical clustering process. The means of the five clusters and a one-way analysis of variance across clusters for the HDHQ, 16PF and PSI scales are shown in Table 2. Between-cluster differences were analysed by t-tests and the results of this analysis are shown in Table 3.

The clusters were compared against those clusters identified previously from the same test battery by McGurk et al. (1981) and McGurk et al. (1983). On initial examination the profiles of three clusters appeared remarkably similar to earlier profiles. These clusters were provisionally assigned the same Type numbers as the clusters in the previous research. The remaining clusters were the largest group containing 115 subjects (33.4 per cent of the sample) and the smallest group containing 26 subjects (7.6 per cent of the sample).

Cronbach and Gleser (1953) have reviewed measures of profile similarity and recommended the d measure, the square root of the sum of squared differences between profile elements. The d measure, unlike the correlation coefficient, is sensitive to both profile shape and elevation. Nunnally (1962) recommended the use of a function of d but he was concerned essentially with transformations on profile data for further analyses.

TABLE 2

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS : ONE-WAY ANALYSIS OF VARIANCE OF 28 PERSONALITY SCALES

	TYPE 1 (N=115)		TYPE 2 (N=56)		TYPE 3 (N=53)		TYPE 4 (N=94)		TYPE 5 (N=26)		F(df=4/339)
	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	MEAN	S.D.	
HDHQ GUILT	3.62	1.61	2.54	1.43	5.57	1.15	3.73	1.70	1.50	1.39	41.00 ***
HDHQ SELF-CRITICISM	5.23	1.81	3.89	2.07	7.49	1.45	4.42	1.86	2.08	1.55	50.32 ***
HDHQ PROJECTED HOSTILITY	3.40	1.78	2.20	1.39	4.81	1.89	4.05	2.11	2.23	1.90	18.88 ***
HDHQ ACTED OUT HOSTILITY	6.37	1.87	5.34	2.23	7.64	2.35	8.96	1.92	6.77	2.01	34.80 ***
HDHQ CRITICISM OF OTHERS	7.61	1.87	6.23	1.46	8.75	1.79	9.02	1.47	8.54	1.94	25.96 ***
HDHQ GENERAL HOSTILITY	26.23	5.40	20.20	5.92	34.23	4.89	30.18	5.24	21.15	5.09	63.43 ***
HDHQ DIRECTION OF HOSTILITY	-3.50	4.72	-3.20	5.40	-0.70	6.43	-9.38	4.97	-11.85	5.75	39.81 ***
16 PF OUTGOING	4.18	1.50	3.91	1.82	4.58	1.76	4.10	1.62	5.77	1.42	7.02 ***
16 PF INTELLIGENT	6.02	1.76	7.16	0.97	6.87	1.33	6.95	1.25	7.19	1.67	9.69 ***
16 PF EMOTIONALLY STABLE	4.11	1.80	4.71	1.59	2.89	1.83	3.74	1.53	5.08	1.57	11.65 ***
16 PF ASSERTIVE	3.65	1.65	2.91	1.76	3.89	2.08	5.32	1.27	4.81	2.00	22.80 ***
16 PF HAPPY GO LUCKY	4.95	1.72	6.18	1.71	5.13	2.18	6.50	1.22	7.19	1.09	19.56 ***
16 PF CONSCIENTIOUS	3.96	1.49	4.29	1.65	4.15	1.56	2.67	1.55	3.31	1.57	14.55 ***
16 PF VENTURESOME	3.30	1.84	3.63	2.15	2.00	1.48	4.14	1.86	6.19	1.26	26.39 ***
16 PF TENDERMINDED	2.83	1.63	1.68	1.51	2.42	1.81	2.41	1.96	2.92	2.00	4.44 **
16 PF SUSPICIOUS	3.78	1.65	2.78	1.43	3.77	1.93	5.29	1.50	4.69	1.78	24.17 ***
16 PF IMAGINATIVE	3.70	1.33	3.18	1.16	3.26	1.27	3.73	1.48	4.08	1.57	3.32 *
16 PF SHREWD	4.11	1.36	4.14	1.09	3.92	1.50	3.52	1.37	4.04	1.34	3.10 *
16 PF APPREHENSIVE	4.52	1.49	3.34	1.68	5.87	1.37	4.32	1.46	2.12	1.53	34.65 ***
16 PF EXPERIMENTING	4.62	1.54	4.63	1.34	4.30	1.72	5.06	1.55	5.62	1.13	4.55 **
16 PF SELF-SUFFICIENT	4.12	1.82	2.66	1.98	4.15	2.34	3.51	1.81	2.27	2.18	9.73 ***
16 PF CONTROLLED	4.17	1.59	5.21	1.25	3.87	1.33	3.50	1.37	4.73	1.12	14.69 ***
16 PF TENSE	3.96	1.70	2.13	1.71	5.98	1.63	3.43	1.79	1.65	1.74	45.69 ***
PSI ALIENATION	9.65	2.85	6.77	2.60	12.13	2.85	8.65	2.44	6.34	2.38	36.56 ***
PSI SOCIAL NONCONFORMITY	14.36	2.78	13.79	3.14	16.21	2.68	16.96	2.15	15.88	2.58	18.98 ***
PSI DISCOMFORT	12.57	4.31	8.52	3.95	16.25	3.96	10.86	4.29	4.65	2.77	45.79 ***
PSI EXPRESSION	12.57	3.29	12.98	4.03	12.02	3.59	15.79	3.83	19.15	3.32	28.44 ***
PSI DEFENSIVENESS	10.07	2.47	11.96	2.28	8.98	2.54	8.45	2.42	10.35	2.38	20.60 ***

*p<0.05 ** p<0.01 *** p<0.001

TABLE 3

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS : T-TESTS BETWEEN CLUSTERS ON 28 PERSONALITY SCALES

SCALE	1v2	1v3	1v4	1v5	2v3	2v4	2v5	3v4	3v5	4v5
	t	t	t	t	t	t	t	t	t	t
HDHQ GUILT	4.34***	-7.67***	-0.55	6.37***	-10.33***	- 4.63***	2.85**	6.97***	11.09***	6.58***
HDHQ SELF-CRITICISM	4.54***	-7.57***	3.24**	8.05***	-10.42***	- 1.72	4.25***	9.93***	12.54***	5.85***
HDHQ PROJECTED HOSTILITY	4.00***	-4.60***	-2.54*	2.91**	- 7.38***	- 5.95***	-0.07	2.38*	5.83***	4.45***
HDHQ ACTED OUT HOSTILITY	3.12**	-3.75***	-9.13***	-0.89	- 5.90***	-10.53***	-2.96**	-3.76***	1.79	4.85***
HDHQ CRITICISM OF OTHERS	4.75***	-3.88***	-5.71***	-2.41*	- 7.40***	- 9.29***	-5.47***	-0.87	0.51	1.23
HDHQ GENERAL HOSTILITY	6.92***	-9.01***	-5.32***	4.37***	-13.69***	-11.06***	-0.75	4.40***	10.21***	7.62***
HDHQ DIRECTION OF HOSTILITY	-0.35	-3.20**	8.03***	7.30***	- 2.47*	6.95***	6.91***	9.59***	8.83***	2.11*
16 PF OUTGOING	1.03	-1.49	0.34	-4.50***	- 2.17	- 0.71	-4.82***	1.72	- 3.05**	-4.62***
16 PF INTELLIGENT	-4.93***	-3.59***	-4.69***	-3.80***	1.08	0.90	-0.09	-0.33	- 0.96	-0.78
16 PF EMOTIONALLY STABLE	-2.19*	4.39***	1.57	-2.64**	5.67***	3.41**	-0.91	-2.97**	- 5.44***	-3.57***
16 PF ASSERTIVE	2.71**	-0.84	-7.14***	-3.17**	- 3.03**	- 8.49***	-4.76***	-4.96***	- 2.29*	1.37
16 PF HAPPY GO LUCKY	-4.60***	-0.68	-6.79***	-6.29***	3.32**	- 1.16	-2.60*	-4.85***	- 5.24***	-1.90
16 PF CONSCIENTIOUS	-1.30	-0.76	5.96***	1.93	0.45	6.17***	2.66**	5.56***	2.27*	-1.85
16 PF VENTURESOME	-1.08	4.33***	-3.31**	-7.33***	4.67***	- 1.68	-5.96***	-6.86***	- 9.65***	-5.11***
16 PF TENDER	3.99***	1.40	1.67	-0.25	- 2.18*	- 2.47*	-2.97**	0.01	- 1.20	-1.30
16 PF SUSPICIOUS	3.81***	0.03	-6.62***	-2.56*	- 3.21**	- 9.13***	-4.96***	-5.39***	- 2.35*	1.64
16 PF IMAGINATIVE	2.34*	1.91	-0.20	-1.29	- 0.33	- 2.42*	-2.79**	-2.02*	- 2.50*	-1.14
16 PF SHREWD	-0.14	0.85	3.17**	0.26	0.85	2.74**	0.33	1.75	- 0.36	1.74
16 PF APPREHENSIVE	4.84***	-5.41***	0.97	7.39***	- 8.80***	- 3.87***	3.44**	6.01***	10.45***	6.63***
16 PF EXPERIMENTING	0.01	1.29	-2.08*	-3.01**	1.11	- 1.72	-2.75**	-2.93**	- 3.62***	-1.64
16 PF SELF-SUFFICIENT	4.70***	-0.01	2.36*	4.46***	- 4.00***	- 2.59*	0.85	1.92	4.05***	2.89**
16 PF CONTROLLED	-4.58***	1.27	3.40**	-1.85	5.00***	7.22***	1.45	1.52	- 2.56*	-3.95***
16 PF TENSE	6.56***	-7.11***	2.23*	6.18***	-11.74***	- 4.49***	1.16	8.68***	10.54***	4.66***
PSI ALIENATION	6.63***	-5.59***	2.70**	5.70***	-10.49***	- 4.18***	0.66	7.60***	9.05***	3.89***
PSI SOCIAL NONCONFORMITY	1.34	-4.17***	-7.00***	-2.63**	- 4.75***	- 7.06***	-3.32**	-1.64	0.51	1.82
PSI DISCOMFORT	6.07***	-5.39***	3.00**	8.90***	- 9.84***	- 3.39**	3.97***	7.65***	11.81***	6.83***
PSI EXPRESSION	-0.69	0.92	-6.39***	-8.38***	1.39	- 4.59***	-7.19***	-6.06***	- 8.24***	-4.20***
PSI DEFENSIVENESS	-4.79***	2.70**	4.81***	-0.52	6.41***	8.58***	2.81**	1.28	- 2.35*	-3.53***

*p<0.05 **p<0.01 ***p<0.001 (two-tailed tests)

Cattell et al. (1970) used d but expressed the final statistic as the sum of the squared differences ($\sum d^2$) between profile elements. This facilitated finer discrimination between profiles than the square root of the sum of the squared differences.

The five clusters were compared using $\sum d^2$ with the four clusters identified in the previous detention centre and borstal studies. Tables 4 and 5 show the similarity coefficients generated by these comparisons.

Table 4 shows that Type 1, the largest cluster, is most similar to Type 4 in the detention centre sample. There are obvious similarities between these groups but the similarity coefficient between Type 1 from each study is influenced disproportionately by differences on one scale. Type 1 groups differ on HDHQ Direction of Hostility and this contributes 71.4 per cent of the variance of the similarity coefficient computed across twenty eight scales. Moreover, a descriptive analysis shows Type 1 subjects to share many similar scores (Appendix B). Similarity coefficients demonstrate the present Type 1 to be most similar to Type 3 in the borstal sample, but again the descriptive analysis shows this group to be similar also to Type 1.

The results in Tables 4 and 5 confirm the similarity between three clusters (Types 2, 3, 4) and the types identified previously. Similarity coefficients, as a unitary measure of profile similarity, should be interpreted with caution - especially when computed across different tests - but the similarity of the types from the different studies is confirmed by examination of their scores on the twenty-eight scales of the three tests (Appendix B).

The smallest cluster, Type 5, bears no direct resemblance to previous types but Tables 4 and 5 show this group to be least dissimilar to Type 4 in the previous studies. Further demonstration of between-cluster differences in the present study is seen in Figure A which shows the mean profiles of the groups on one of the three tests administered, the PSI.

TABLE 4

SIMILARITY COEFFICIENTS ($\sum d^2$) BETWEEN PRESENT TYPES AND TYPES IDENTIFIED BY McGURK ET AL. (1981) IN A DETENTION CENTRE SAMPLE

	McGURK ET AL. (1981)			
	Type 1	Type 2	Type 3	Type 4
Type 1 (N=115)	72.99*	273.56	84.04	37.96
Type 2 (N= 56)	150.85	<u>75.81</u>	318.99	110.34
Type 3 (N= 53)	153.03	716.09	<u>26.31</u>	181.96
Type 4 (N= 94)	310.09	256.41	140.92	<u>25.19</u>
Type 5 (N= 26)	525.91	301.65	543.37	158.46

* 71.42 per cent of the variance of this coefficient can be attributed to differences on HDHQ Direction of Hostility.

TABLE 5

SIMILARITY COEFFICIENTS (Σd^2) BETWEEN PRESENT TYPES AND TYPES IDENTIFIED BY McGURK ET AL. (1983) IN A BORSTAL SAMPLE

	McGURK ET AL. (1983)			
	Type 1	Type 2	Type 3	Type 4
Type 1 (N=115)	84.55	145.33	59.23	104.21
Type 2 (N= 56)	55.85	<u>16.83</u>	259.58	151.44
Type 3 (N= 53)	435.02	497.39	<u>19.83</u>	295.91
Type 4 (N= 94)	321.27	285.18	128.35	<u>34.20</u>
Type 5 (N= 26)	375.20	145.09	477.67	111.79

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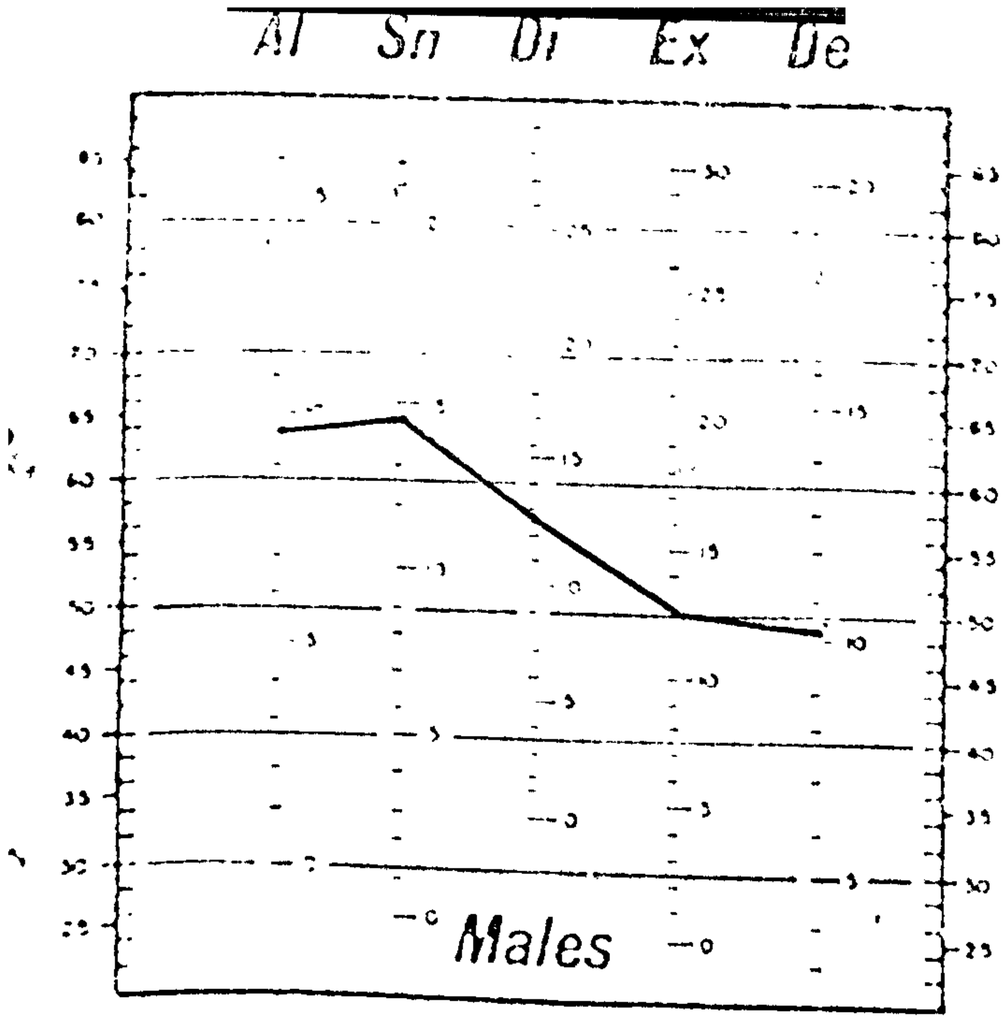
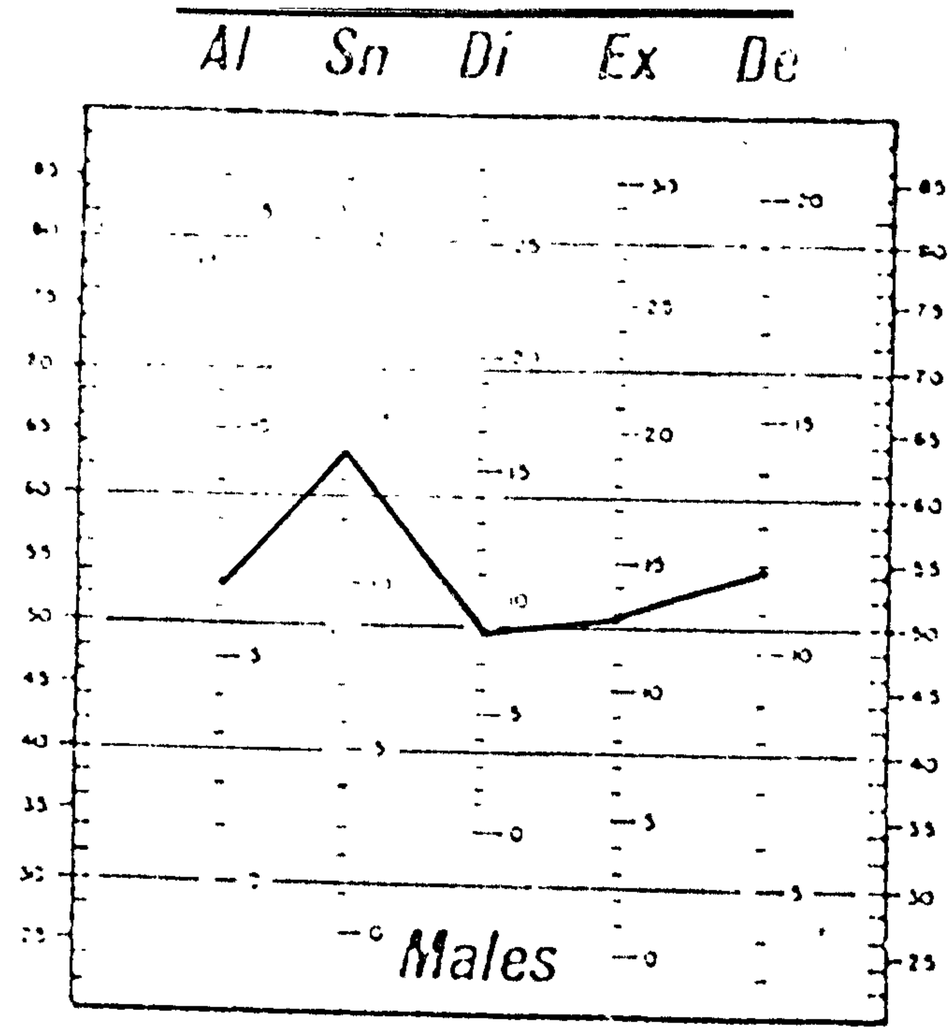
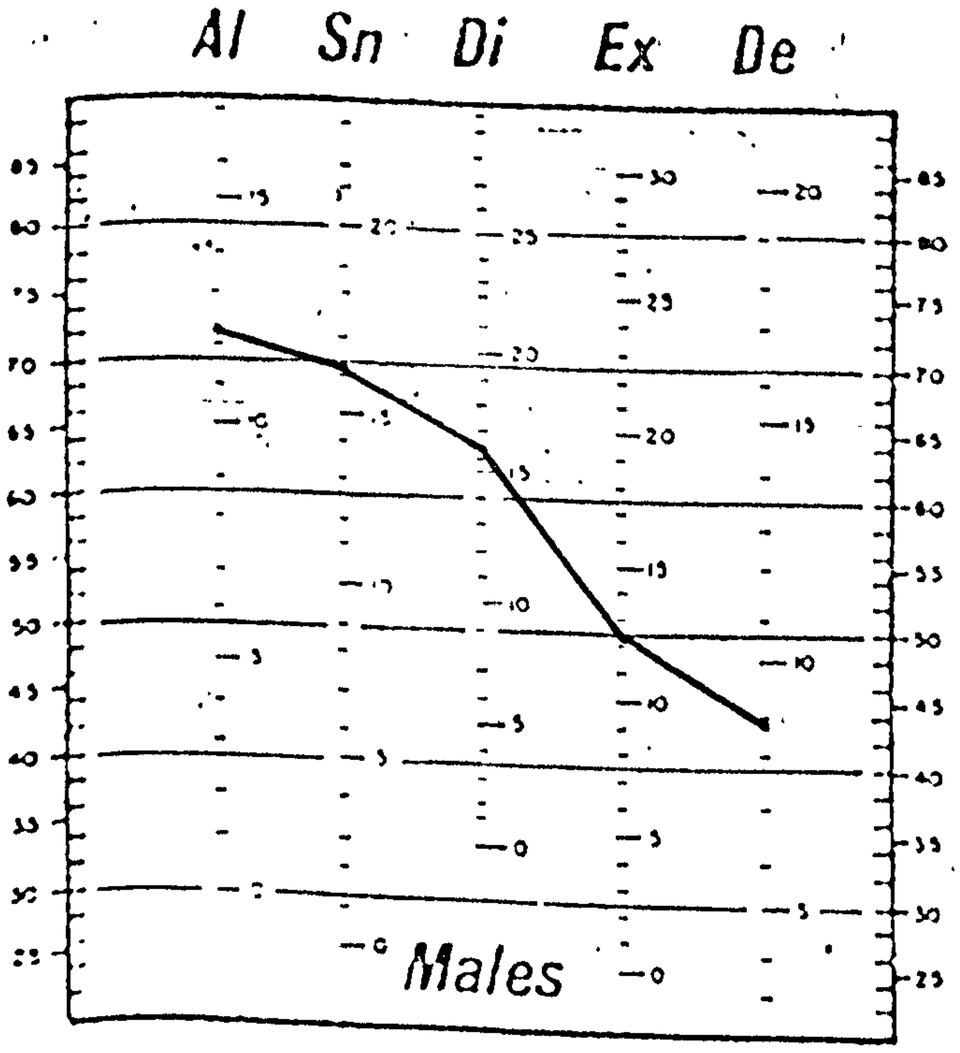


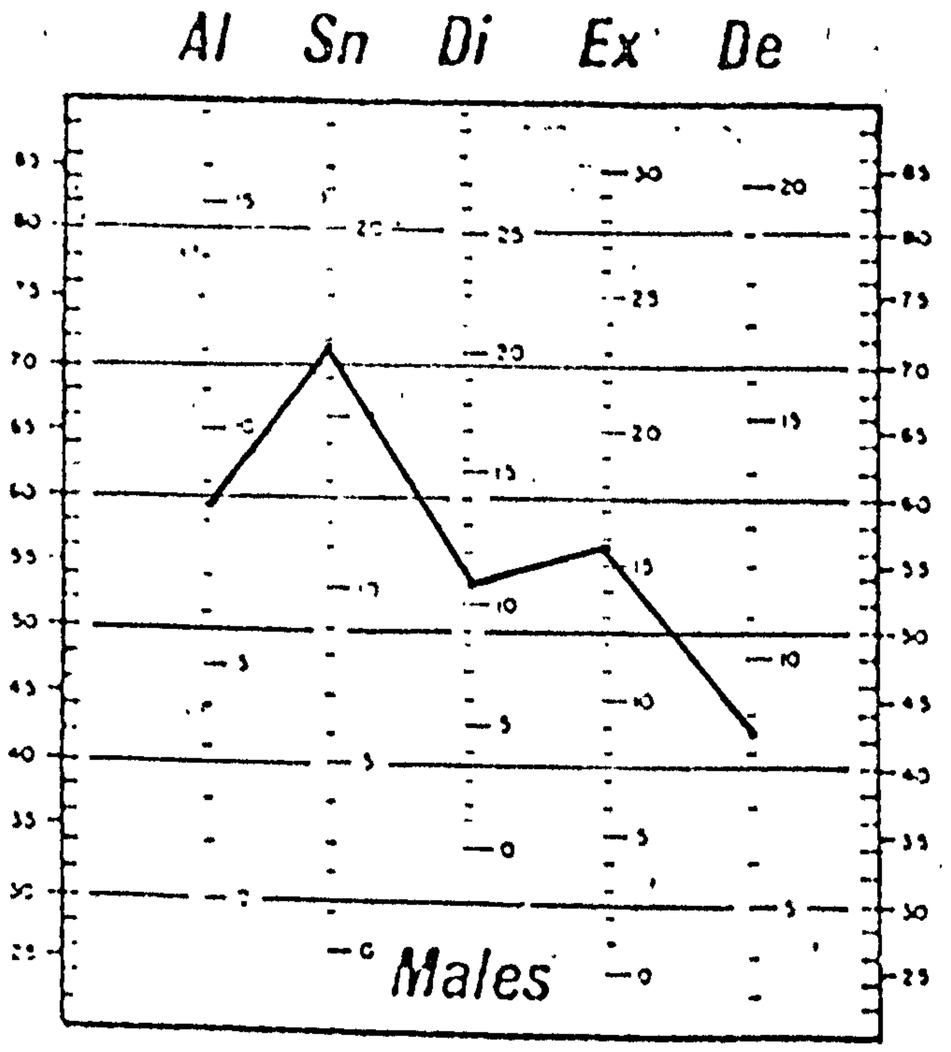
TYPE 1 (N = 115)



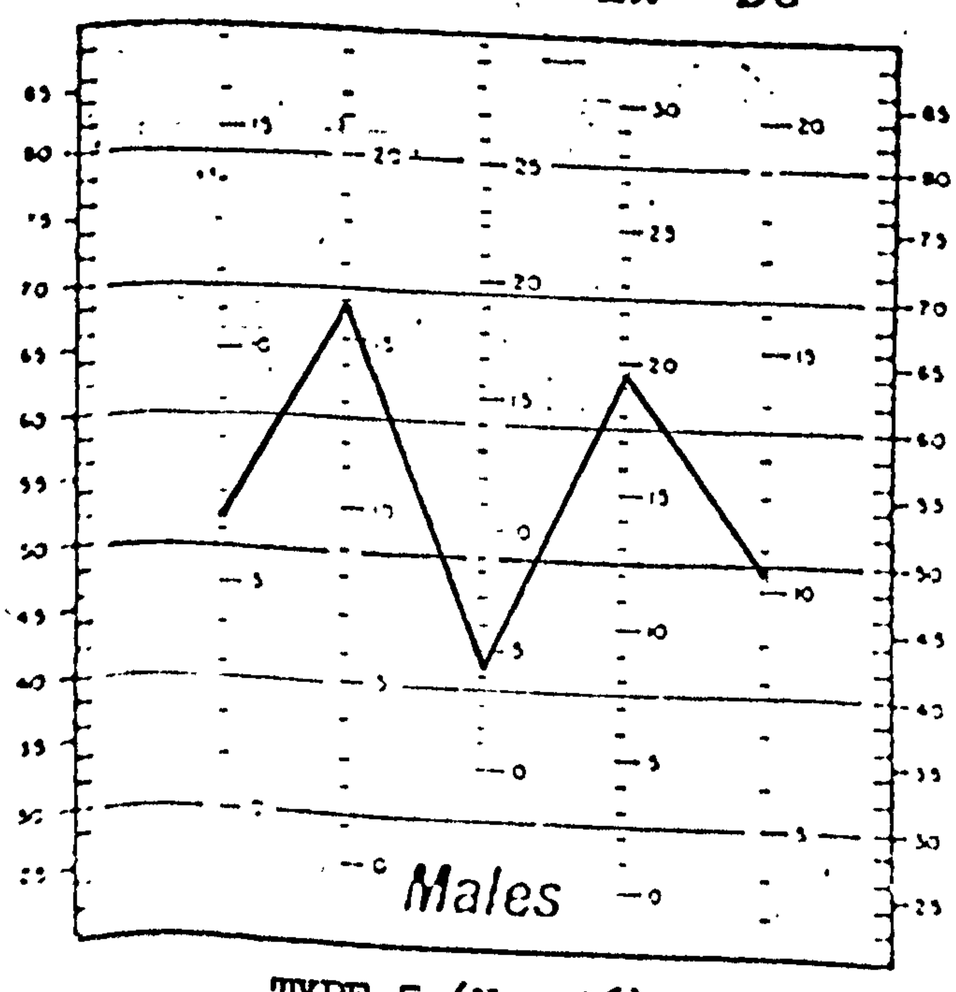
TYPE 2 (N = 56)



TYPE 3 (N = 53)



TYPE 4 (N = 94)



TYPE 5 (N = 26)

FIGURE A

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS AND THEIR MEAN PROFILES ON THE PSI

Type 1 is the largest group and contains 115 subjects (33.4 per cent of the sample). On the HDHQ these subjects are the second most self-critical (SC), the second least critical of others (CO) and marginally extrapunitive on DH. On the 16PF they are the most serious (Factor F) and, after Type 3, the most shy (H), apprehensive (O) and tense (Q4).

On the PSI they score second to Type 3 on the alienation and discomfort scales, but significantly higher than the other groups. The alienation scale measures a similarity in responding to psychiatric inpatients while discomfort is an assessment of neuroticism.

Compared to Type 1 from the previous research they are less intropunitive than the Anxious group and more extrapunitive than both the Anxious and Withdrawn groups. On the 16PF they are more suspicious and less shy than both other Type 1 groups, less tense than the Anxious subjects and more happy-go-lucky than the Withdrawn. On the PSI they score highly on the alienation and discomfort scales in common with the Anxious type. However, this group are also more socially nonconformist and expressive than previous Type 1 subjects. Tentatively this group was labelled as 'Neurotic Acting-Out'.

Type 2 contains 56 subjects (16.3 per cent of the sample). On the HDHQ these subjects score lowest on projected hostility (PH), acted-out hostility (AH), criticism of others (CO) and general hostility (GH). With the exception of Type 5, they also score lowest on guilt (G) and self-criticism (SC). On the 16PF they are the least assertive (E), the most conscientious (G) and the most controlled (Q3). Apart from Type 5, they are the least apprehensive (O) and the least tense (Q4).

On the PSI, with the exception of Type 5, they record the lowest scores on alienation and discomfort. They also record the lowest score on social nonconformity, the scale which assesses a similarity in responding to incarcerated offenders. This profile is similar to that reported previously

for Type 2 subjects, especially in the borstal sample. Hence this Type was labelled 'Normal'.

Type 3 contains 53 subjects (15.4 per cent of the sample). This group record higher scores than all other groups on guilt (G), self-criticism (SC), projected hostility (PH) and, with the exception of Type 4, acted-out hostility (AH). They record significantly higher scores than the other groups on general hostility (GH), and are also significantly less extrapunitive (DH). On the 16PF they are less emotionally stable (C) than all other groups, and significantly more shy and timid (H), apprehensive (O) and tense (Q4). On the PSI they record significantly higher scores than the other clusters on the alienation and discomfort scales. This type is very similar to Type 3 from the previous studies and thus were labelled 'Disturbed'.

Type 4 contain 94 subjects (27.3 per cent of the sample). On the HDHQ these subjects score highest on criticism of others (CO) and significantly higher than the other groups on acted-out hostility (AH). With the exception of Type 5 they score highest on extrapunitive hostility.
On the 16PF they are more assertive (E), expedient (G), suspicious (L) and undisciplined (Q3) than all other groups and, excepting Type 5, the most happy-go-lucky (F), venturesome (H) and experimenting (Q1).
On the PSI Type 4 are the most socially nonconformist, and second to Type 5 on expression. This group is markedly similar to Type 4 from the previous studies. They have normal psychological profiles, but are characterised by high scores on expression, social nonconformity and the acting out of impulses. In this study, however, the label 'Adolescent Delinquent' is preferred to Truculent.

Type 5 is the smallest group and contains only 26 subjects (7.6 per cent of the sample). On the HDHQ they record very low scores on guilt (G) and self-criticism (SC) and are the most extrapunitive (DH) of the five clusters. On the 16PF they are the most outgoing (A), emotionally stable (C), happy-go-lucky (F), venturesome (H), imaginative (M), self-assured (O), experimenting (Q1) and relaxed (O4).

On the PSI they score lowest on the clinical scales of alienation and discomfort and highest on expression. Across tests this cluster are characterised by many extreme scores indicating a very high degree of psychological integration, extrapunitive hostility, individuality and free expression of impulses. Bearing in mind that the ascription of these characteristics results from self-report inventories this group were tentatively labelled 'Primary Psychopaths'.

A discriminant function analysis was performed, first, to find the linear combinations of variables which best discriminated the clusters and, second, to examine the ease with which the clusters could be distinguished mathematically. Twenty five of the twenty-eight variables were included in four discriminant functions, details of which are presented in Table 6. The third and fourth functions account between them for as little as 15 per cent of the variance in the discriminating variables, but the chi-squares after the second and third functions indicate that statistically significant amounts of discriminating information still exist for inclusion in discriminant functions. Standardized discriminant function coefficients are shown in Appendix C and these indicate that the first function, which accounts for 51.4 per cent of the variance of the discriminating variables, is predominantly a measure of psychiatric and neurotic disturbance. The second function, which accounts for 33.9 per cent of the variance, is essentially a measure of expression, social nonconformity and a generalized following of impulses.

Cluster means on the four functions are also shown in Appendix C and in the case of the first function the separation between Type 3 (Disturbed) and the other clusters is demonstrated. On the second function a similarity between Type 4 (Adolescent Delinquent) and Type 5 (Primary Psychopath) is evident.

To check the adequacy of the four discriminant functions the original sample of 344 subjects were classified by the variables used in the functions. The results of this analysis are presented in Table 7 which shows an overall rate of correct classification of 79.94 per cent. Within this figure only 66.1 per cent of Type 1 subjects (Neurotic Acting-Out) were correctly classified while 86.9 per cent of subjects in the other clusters were assigned to the correct groups. In the earlier detention centre and borstal studies Type 1 subjects, who reconvicted to a statistically significant lesser extent, were correctly classified in 81.7 and 95.7 per cent of cases respectively.

In view of the relatively low rate of correct classification of Type 1 subjects and the earlier finding that, unlike Types 2-4, they were not directly similar to clusters identified previously further sub-division of this cluster was considered. The first large change in the error term of the fusion of clusters dictated the adoption of the five cluster solution but it remains conceivable that a more theoretically meaningful solution might be reached. It was found that Type 1 was produced by the fusion of two clusters from the six cluster solution. Similarity coefficients were computed between each of these clusters and Type 1 from both the detention centre ($\sum d^2$ = 80.87, 82.01) and borstal samples ($\sum d^2$ = 86.80, 101.48). The results demonstrate the combination of the two clusters, Type 1 in the present research, to be more like Type 1 from each of the previous studies than either of the sub-divisions. Hence the types identified in the five cluster solution were retained.

TABLE 6

DISCRIMINANT FUNCTION ANALYSIS OF SCORES OF FIVE PERSONALITY TYPES OF YOUNG OFFENDERS ON 28 PERSONALITY VARIABLES

DISCRIMINANT FUNCTION	EIGENVALUE	PERCENT OF VARIANCE	CANONICAL CORRELATION	AFTER FUNCTION	WILKS' LAMBDA	CHI-SQUARE	DEGREES OF FREEDOM	SIGNIFICANCE
				0	0.11230	717.20	100	0.000
1	1.70834	51.37	0.79421	1	0.30414	390.40	72	0.000
2	1.12782	33.92	0.72803	2	0.64716	142.73	46	0.000
3	0.30542	9.18	0.48370	3	0.84482	55.31	22	0.000
4	0.18368	5.52	0.39393					

TABLE 7

FIVE PERSONALITY TYPES AND PREDICTED GROUP MEMBERSHIP BY DISCRIMINANT FUNCTION

ACTUAL GROUP MEMBERSHIP		PREDICTED GROUP MEMBERSHIP				
		TYPE 1 (Neurotic Acting Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
		N	N	N	N	N
		(% age in parentheses)				
Type 1 (Neurotic Acting-Out)	115	76 (66.1)	17 (14.8)	10 (8.7)	11 (9.6)	1 (0.9)
Type 2 (Normal)	56	5 (8.9)	46 (82.1)	1 (1.8)	1 (1.8)	3 (5.4)
Type 3 (Disturbed)	53	1 (1.9)	1 (1.9)	49 (92.5)	2 (3.8)	0 (0.0)
Type 4 (Adolescent Delinquent)	94	7 (7.4)	2 (2.1)	3 (3.2)	78 (83.0)	4 (4.3)
Type 5 (Primary Psychopath)	26	0 (0.0)	0 (0.0)	0 (0.0)	0 (0.0)	26 (100.0)

Percentage of cases correctly classified overall = 79.94%

Everitt (1980) advises that the best classification of subjects is obtained when solutions from different clustering techniques produce similar results. The primary solution obtained from Ward's (1963) minimum variance method was compared to the results from a technique - hierarchical mode analysis (Wishart, 1969) - which searches for natural sub-groupings of data. The Density algorithm from the computing package Clustan was adopted as it "offers an improved form of hierarchical mode analysis" (Wishart, 1978, p. 51). This particular technique was developed to counter the typical failure of forms of hierarchical mode analysis to identify large and small clusters simultaneously.

This analysis did not produce a meaningful solution for the development of a typology of delinquents requiring classification of all subjects. At the twelve cluster level of classification 84 per cent of the subjects were concentrated in six clusters. At the five cluster level 83 per cent of the sample were contained in one cluster while three other clusters each contained less than ten subjects.

Everitt recommends the further check on the stability of the cluster solution of randomly dividing the data and clustering each sub-set. This recommendation was adopted and Appendix D shows the increases in the error term produced by the final twenty fusions of the hierarchical clustering procedure for each random sub-set. For each sub-set the fusion of five into four clusters produced larger increases in the error term than any previous fusion. In common with the results of the clustering of the entire sample, therefore, a five cluster solution was selected for each sub-set. The clusters from each sub-set were provisionally assigned the same Type numbers as those clusters in the original analysis to which their profiles appeared most similar. The clusters from each sub-set were compared with each other and with the types identified from the primary cluster analysis. Table 8 shows the similarity coefficients from between-cluster comparisons across

sub-sets while Table 9 presents similarity coefficients between the primary clusters and the most similar clusters in each sub-set. Descriptive analyses of the scores on the personality variables of similar types from the primary and two secondary analyses are presented in Appendix E.

It is apparent from Table 8 that four clusters are common to each random sub-set. Table 9 and Appendices E (i)-(iv) show these four clusters to resemble closely the Neurotic Acting-Out, Normal, Adolescent Delinquent and Primary Psychopath types from the primary analysis. Type 3 from each sub-set are not similar but Table 9 and Appendix E (v) each show this cluster from the first sub-set to have an almost identical profile to the Disturbed cluster. Type 3 in the second sub-set is seen from the similarity coefficients in Table 8 to be most like Types 2 and 5 in the first sub-set. It is similar to each of these groups on a different combination of personality scales (Appendix E (vi)) but there is no equivalent cluster in the primary solution. The general pattern of findings from the analysis of two random sub-sets thus presents very strong evidence for the stability of the empirically derived typology.

The five clusters identified were compared across the following indices:

(i) Age.

(ii) Number of previous convictions.

(iii) The offences committed for which the present sentence was being served.

(iv) Previous sentences served.

(v) Employment status at time of arrest.

(vi) Place of residence at time of arrest.

A one-way analysis of variance failed to show differences in age across clusters ($F = 1.15, df=4/339, p = 0.33$) while a Kruskal-Wallis one-way analysis

TABLE 8

SIMILARITY COEFFICIENTS (Σd^2) BETWEEN TYPES IDENTIFIED IN CLUSTER ANALYSES OF TWO RANDOM SUB-SETS

		FIRST SUB-SET				
		TYPE 1 (N=34)	TYPE 2 (N=42)	TYPE 3 (N=33)	TYPE 4 (N=28)	TYPE 5 (N=35)
SECOND SUB-SET	TYPE 1 (N = 41)	13.40	118.03	83.61	52.78	199.58
	TYPE 2 (N = 42)	107.14	41.32	171.15	195.41	199.76
	TYPE 3 (N = 21)	319.49	69.16	585.20	306.93	66.28
	TYPE 4 (N = 43)	92.91	183.94	144.42	12.78	204.06
	TYPE 5 (N = 25)	160.71	236.71	423.97	93.37	70.41 *

* 56.9 per cent of the variance of this coefficient can be attributed to differences in score on HDHQ General Hostility.

TABLE 9

SIMILARITY COEFFICIENTS (Σd^2) BETWEEN TYPES IDENTIFIED IN PRIMARY CLUSTER ANALYSIS AND SIMILAR TYPES FROM SECONDARY CLUSTER ANALYSES OF RANDOM SUB-SETS

TYPE (identified in primary analysis)	SIMILARITY COEFFICIENTS	
	PRIMARY ANALYSIS V 1ST RANDOM SUB-SET	PRIMARY ANALYSIS V 2ND RANDOM SUB-SET
1. Neurotic Acting-Out	33.93	36.26
2. Normal	20.43	65.70 [b]
3. Disturbed	6.05	no similar type identified
4. Adolescent Delinquent	22.18	17.61
5. Primary Psychopath	23.85	82.82 [a]

a 64 per cent of the variance of this coefficient can be attributed to differences on HDHQ General Hostility.

b 52 per cent of the variance of this coefficient can be attributed to differences on HDHQ General Hostility and Direction of Hostility.

of variance (Siegel, 1956) did not reveal differences in number of previous convictions ($H = 5.83$, $df = 4$, $p = 0.21$). These findings, however, are less significant than the results of equivalent analyses to be conducted on the cluster members serving the same type of sentence.

Next the clusters were compared on offences leading to the current sentence and, also, on the number of offences across categories with which they were charged. On examination of the offences committed it was discovered that on four of the nine a priori categories fewer than 10 per cent of the total sample had recorded convictions. The small number of subjects with offences in these categories were spread across clusters except in the case of breach of the peace. It was discovered that Normal subjects were significantly more likely than the aggregate of the other clusters to be charged with this offence ($\chi^2 = 9.61$, $df = 1$, $p < 0.01$).

In the case of the five offence categories encompassing the vast majority of offences the clusters were compared by means of χ^2 tests (Siegel, 1956). Appendix F (i) shows that there were no differences across clusters in types of offence committed nor in the number of offences across categories with which subjects were charged.

Appendix F (ii) shows the distribution of the clusters on the previous sentences served by subjects. The results of χ^2 ($df = 4$) tests indicate statistically significant differences across clusters on the previous sentence options of attendance centre order ($p < 0.05$) and the combined category of borstal and young prisoner sentences ($p < 0.05$). These categories were combined to represent the most serious custodial options in view of the fact that only 7.1 per cent of the total sample had served young prisoner sentences previously.

Finally the clusters were compared on employment status and place of residence at time of arrest. Values of the latter variable were being married or living at home with both natural parents present, living at home

with one natural parent present or living elsewhere including lodgings, flat or hostel. The results in Appendix F (iii) show there to be no differences across clusters in either employment status or place of residence at time of arrest.

The distribution of five clusters of subjects across three types of custodial sentence for young offenders is presented in Table 10. In the following sections the cluster members released from each type of sentence are compared on primary indices of recidivism. For offence variables and certain secondary indices of recidivism the clusters are compared across sentence types.

Personality and Recidivism in a Detention Centre Sample

The five personality types in the detention centre sample were compared on age and number of previous convictions as each of these variables has been demonstrated to be predictive of recidivism. A one-way analysis of variance failed to show any differences in age ($F = 0.81, df=4/120, p = 0.52$) while a Kruskal-Wallis one-way analysis of variance did not show any differences in number of previous convictions ($H = 2.34$, $df = 4$, $p = 0.67$).

Of the 125 subjects released from the detention centre 7 could not be traced at Criminal Records Office. The remaining 118 subjects were followed-up for a minimum period of 20 months after release, with a mean follow-up of 22.64 months (s.d. = 1.78). A one-way analysis of variance showed there to be no differences across clusters in length of follow-up period ($F = 0.25, df=4/113, p = 0.91$).

Of the sample of 118 subjects, 70 (59.3 per cent) were reconvicted within one year and a total of 82 (69.5 per cent) were reconvicted within the mean follow-up of 22.64 months. Table 11 shows the reconviction rates of the

TABLE 10

THE DISTRIBUTION OF FIVE EMPIRICALLY DERIVED PERSONALITY TYPES ACROSS THREE CUSTODIAL SENTENCES FOR YOUNG OFFENDERS

SENTENCE OPTION	CLUSTER				
	TYPE 1	TYPE 2	TYPE 3	TYPE 4	TYPE 5
	Neurotic Acting Out	Normal	Disturbed	Adolescent Delinquent	Primary Psychopath
	(N = 115)	(N = 56)	(N = 52)	(N = 94)	(N = 26)
DETENTION CENTRE (N = 125)	50	28	16	26	5
BORSTAL (N = 146)	42	21	23	43	17
YOUNG PRISONER PRISON (N = 73)	23	7	13	26	4

TABLE 11

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS AND RECIDIVISM IN A DETENTION CENTRE SAMPLE

(a) RECONVICTION WITHIN 1 YEAR

	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	45	27	15	26	5
Number of recidivists	25	18	10	14	3
Number of non-recidivists	20	9	5	12	2
Recidivism rate	56%	67%	67%	54%	60%

$\chi^2 = 1.54$, df = 4, p = 0.82

(b) RECONVICTION WITHIN EXTENDED FOLLOW-UP

	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	45	27	15	26	5
Number of recidivists	33	20	11	15	3
Number of non-recidivists	12	7	4	11	2
Recidivism rate	73%	74%	73%	58%	60%

* χ^2 test invalid as > 20 per cent of cells have expected frequency < 5.

five personality types for each period. It can be seen from the first analysis that the clusters do not differ on reconviction within one year ($\chi^2 = 1.54$, df = 4, p = 0.82). In the second analysis the assumptions of the χ^2 test are violated as more than 20 per cent of the cells have an expected frequency of less than 5. In this situation it is recommended that categories are combined to increase expected cell frequencies (Cochran, 1954). The dependent variable is dichotomous and cannot be reduced further but, on the grounds of a posteriori reasoning, Type 4, which has the lowest reconviction rate across clusters, was compared against the combined categories of the other clusters. The result of this analysis proved non-significant ($\chi^2 = 2.15$, df = 1, p = 0.14).

The five personality types were compared on time to reconviction and whether they received a custodial or non-custodial sentence. The former variable is a measure of time between release from the detention centre and the date of conviction for the first subsequent offence committed. This measure does not relate to the actual date of the offence committed but it can be assumed from the randomized experimental design that subjects from different clusters would experience equivalent delays between the commission of the offence and the court finding of guilty.

Table 12 (a) shows the mean time to reconviction for each cluster and the result of a Kruskal-Wallis one-way analysis of variance across clusters. This test, which does not assume a normal distribution, found a significant difference across clusters in time to reconviction (H = 9.84, df = 4, $p<0.05$). This difference was identified by further nonparametric analysis (Siegel, 1956) as being due to a difference between Type 1, the Neurotic Acting-Out cluster, and Type 3, the Disturbed cluster (Mann-Whitney $z = -2.20$, two-tailed $p<0.05$). There were no further between-cluster differences.

TABLE 12

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS RELEASED FROM DETENTION CENTRE COMPARED ON TIME TO RECONVICTION AND SENTENCE RECEIVED

(a) TIME TO RECONVICTION

	CLUSTER									
	TYPE 1 (Neurotic Acting-Out)		TYPE 2 (Normal)		TYPE 3 (Disturbed)		TYPE 4 (Adolescent Delinquent)		TYPE 5 (Primary Psychopath)	
	N = 33		N = 20		N = 11		N = 15		N = 3	
Time to reconviction (months)	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
	9.57	4.95	7.25	5.10	5.90	4.91	9.27	4.77	4.67	4.73

Kruskal-Wallis one way analysis of variance ($H = 9.84$, $df = 4$, $p < 0.05$)

(b) SENTENCE RECEIVED

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	33	20	11	15	3
Number receiving custodial sentence	14	9	8	6	2
Number receiving non-custodial sentence	19	11	3	9	1
Custodial Rate	42%	45%	73%	40%	67%

$\chi^2 = 3.98$, $df = 4$, $p = 0.41$

Table 12 (b) shows the distribution of reconvicted subjects receiving custodial and non-custodial sentences. Of the 82 subjects who reconvicted, 39 (47.6 per cent) received custodial sentences. There were no differences across clusters (χ^2 = 3.98, df = 4, p = 0.41), thus confirming the general pattern of the absence of differences on every index of reconviction. The one statistically significant result found related only to the minor difference between two clusters in time to reconviction.

Personality and Recidivism in a Borstal Sample

There were no differences across the five personality types in the borstal sample on age (F = 1.25, df=4/141, p = 0.29) or number of previous convictions (H = 4.39, df = 4, p = 0.36). Of the 146 subjects released 3 could not be traced at Criminal Records Office. The remaining 143 subjects were followed-up for a minimum period of 20 months after release, with a mean follow-up of 25.85 months (s.d. = 4.14). A one-way analysis of variance showed there to be no differences across clusters in length of follow-up period (F = 0.64, df=4/138, p = 0.65).

Of the sample of 143 subjects, 108 (75.5 per cent) were reconvicted within one year and a total of 129 (90.2 per cent) were reconvicted within the mean follow-up of 25.85 months. Table 13 shows the reconviction rates of the five personality types for each period. It can be seen from analysis of reconviction after one year that the five clusters do not differ (χ^2 = 1.54, df = 4, p = 0.82). In the analysis of reconviction at the extended follow-up the assumptions of the χ^2 test are violated as more than 20 per cent of the cells have an expected frequency of less than 5. This violation occurs as a result of the very high rate of reconviction across clusters (90.2 per cent) and inspection of Table 13 (b) indicates both the comparability of the clusters on reconviction and the absence of the need for further analysis.

TABLE 13

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS AND RECIDIVISM IN A BORSTAL SAMPLE

(a) RECONVICTION WITHIN ONE YEAR

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	40	21	23	42	17
Number of recidivists	29	15	17	34	13
Number of non-recidivists	11	6	6	8	4
Recidivism rate	73%	71%	74%	81%	77%

$\chi^2 = 1.54$, df = 4, p = 0.82

(b) RECONVICTION WITHIN EXTENDED FOLLOW-UP

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	40	21	23	42	17
Number of recidivists	35	18	21	40	15
Number of non-recidivists	5	3	2	2	2
Recidivism rate	88%	86%	91%	95%	88%

χ^2 test invalid as > 20 per cent of cells have expected frequency less than 5.

The five personality types were compared on time to reconviction and whether they received a custodial or non-custodial sentence. Table 14 (a) shows the mean time to reconviction for each cluster and the result of a Kruskal-Wallis one-way analysis of variance across clusters. This nonparametric test was used because of the distribution across subjects of time to reconviction ($\bar{X}$ = 10.00, s.d. = 6.91) but the result was non-significant (H = 2.87, df = 4, p = 0.58). Table 14 (b) shows the distribution of reconvicted subjects receiving custodial and non-custodial sentences. Of the 129 subjects who reconvicted, 87 (67.4 per cent) received custodial sentences but there were no statistically significant differences across clusters.

These results from the borstal sample replicate the detention centre findings in that there are no differences across the five personality types on any index of reconviction. In this sample, however, the finding of meaningful differences was effectively precluded by the 90 per cent reconviction rate across clusters.

Personality and Recidivism in a Young Prisoner Sample

There were no differences across the five personality types in this sample on age (F = 1.37, df=4/68, p = 0.25) or number of previous convictions (H = 5.79, df = 4, p = 0.22). Of the 73 subjects released only one could not be traced at Criminal Records Office. The remaining 72 subjects were followed-up for a minimum period of 17 months after release with a mean follow-up of 20.63 months (s.d. = 4.43). A one-way analysis of variance showed there to be no differences across clusters in length of follow-up period (F = 0.96, df=4/67, p = 0.42).

Of the sample of 72 subjects, 45 (62.5 per cent) were reconvicted within one year and a total of 61 (84.7 per cent) were reconvicted within the

TABLE 14

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS RELEASED FROM BORSTAL COMPARED ON TIME TO RECONVICTION AND SENTENCE RECEIVED

(a) TIME TO RECONVICTION

	CLUSTER									
	TYPE 1 (Neurotic Acting-Out)		TYPE 2 (Normal)		TYPE 3 (Disturbed)		TYPE 4 (Adolescent Delinquent)		TYPE 5 (Primary Psychopath))	
	N = 35		N = 18		N = 21		N = 40		N = 15	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Time to reconviction (months)	9.11	6.31	8.50	5.70	11.00	6.53	11.05	7.96	9.67	7.35

Kruskal-Wallis one-way analysis of variance (H = 2.87, df = 4,

p = 0.58)

(b) SENTENCE RECEIVED

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	35	18	21	40	15
Number receiving custodial sentence	22	9	12	31	13
Number receiving non-custodial sentence	13	9	9	9	2
Custodial Rate	63%	50%	57%	76%	87%

$\chi^2 = 8.21$, df = 4, p = 0.08

mean follow-up of 20.63 months. Table 15 shows the reconviction rates of the five personality types for each period. Because of the very small number of subjects in the Type 5, Primary Psychopath group, the analysis of reconviction after one year was conducted across the four other groups. The result of this analysis was non-significant (χ^2 = 0.51, df = 3, p = 0.92). In the analysis of reconviction at the extended follow-up the assumptions of the χ^2 test are violated as more than 20 per cent of the cells have an expected frequency of less than 5. As in the borstal sample there is a very high rate of reconviction (84.7 per cent) across clusters and inspection of Table 15 (b) indicates the comparability of clusters and the absence of the need for further analysis.

The four personality types, excepting the Primary Psychopath group, were compared on time to reconviction and whether they received a custodial or non-custodial sentence. Table 16 (a) shows the mean time to reconviction for each cluster and the result of a Kruskal-Wallis one-way analysis of variance across four clusters. The result of this test was non-significant (H = 3.07, df = 3, p = 0.54). Table 16 (b) shows the distribution of reconvicted subjects receiving custodial and non-custodial sentences. Of the 61 subjects who reconvicted 36 (59 per cent) received custodial sentences, but there were too few subjects in the cells of the table to conduct a test of statistical significance.

The results from this sample are very similar to those of the borstal sample in that the very high rate of reconviction makes the identification of meaningful differences across clusters an unlikely, if not impossible, goal.

Personality and Recidivism Across Regimes

The results across detention centre, borstal and young prisoner sentences fail to support the existence of specific interaction effects

TABLE 15

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS AND RECIDIVISM IN A YOUNG PRISONER SAMPLE

(a) RECONVICTION WITHIN ONE YEAR

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	23	7	13	26	3
Number of recidivists	13	5	8	16	3
Number of non-recidivists	10	2	5	10	0
Recidivism rate	57%	71%	62%	62%	100%

χ^2 test conducted across Types 1-4

$\chi^2 = 1.54$, df = 3, p = 0.82

(b) RECONVICTION WITHIN EXTENDED FOLLOW-UP

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	23	7	13	26	3
Number of recidivists	17	7	10	24	3
Number of non-recidivists	6	0	3	2	0
Recidivism rate	74%	100%	77%	92%	100%

χ^2 test invalid.

TABLE 16

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS RELEASED FROM YOUNG PRISONER PRISON COMPARED ON TIME TO RECONVICTION AND SENTENCE RECEIVED

(a) TIME TO RECONVICTION

	CLUSTER									
	TYPE 1 (Neurotic Acting-Out)		TYPE 2 (Normal)		TYPE 3 (Disturbed)		TYPE 4 (Adolescent Delinquent)		TYPE 5 (Primary Psychopath)	
	N = 17		N = 7		N = 10		N = 24		N = 3	
Time to reconviction (months)	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
	8.88	5.72	8.14	5.84	6.60	4.55	10.16	5.66	7.67	5.85

Kruskal-Wallis one-way analysis of variance across Types 1-4

($H = 3.07$, $df = 3$, $p = 0.54$)

(b) SENTENCE RECEIVED

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	17	7	10	24	3
Number receiving custodial sentence	12	5	5	12	2
Number receiving non-custodial sentence	5	2	5	12	1
Custodial Rate	71%	71%	50%	50%	67%

χ^2 test invalid.

between types of young offender and penal regimes. In the absence of these effects the five personality types across regime variables were compared on the indices of reconviction. This analysis increased the number of subjects in the groups, but also served, relative to the borstal and young prisoner samples, to lower the overall reconviction rate and hence offer increased scope for the discovery of across-cluster differences.

The equivalence of the five clusters on age ($F = 1.15$, $df = 4/339$, $p = 0.33$) and previous convictions ($H = 5.83$, $df = 4$, $p = 0.21$) has been demonstrated. The 333 subjects who could be traced at Criminal Records Office were followed up for a minimum period of 17 months with a mean follow-up of 23.01 months (s.d. = 3.44). A one-way analysis of variance showed there to be no differences across clusters in length of follow-up period ($F = 1.15$, $df = 4/328$, $p = 0.34$).

Of the total sample of 333 subjects, 223 (67 per cent) were reconvicted within one year and a total of 272 (81.7 per cent) were reconvicted within the mean follow-up of 23.01 months. Therefore of the recidivists 82 per cent reconvicted within the first year. Table 17 (a) shows the reconviction rates of the five personality types in the first year and inspection of the χ^2 statistic indicates that there were no differences across clusters ($\chi^2 = 2.34$, $df = 4$, $p = 0.67$). Table 17 (b) shows the cluster membership of subjects who were reconvicted, received non-custodial sentences and were reconvicted again within the first year of release. There were no differences across clusters ($\chi^2 = 5.18$, $df = 4$, $p = 0.27$). The reconviction rate of the clusters in the follow-up period of 23 months is presented in Table 17 (c) but still there are no differences across clusters ($\chi^2 = 1.10$, $df = 4$, $p = 0.89$).

The five personality types were compared on time to reconviction and whether they received a custodial or non-custodial sentence. Table 18 (a) shows the mean time to reconviction for each cluster and the result of a Kruskal-Wallis one-way analysis of variance across clusters. The result of

TABLE 17

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS AND RECIDIVISM ACROSS SENTENCES

(a) RECONVICTION WITHIN ONE YEAR

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	108	55	51	94	25
Number of recidivists	67	38	35	64	19
Number of non-recidivists	41	17	16	30	6
Recidivism rate	62%	69%	69%	69%	76%

$\chi^2 = 2.34$, df = 4, p = 0.67

(b) SECOND RECONVICTION WITHIN ONE YEAR IF NONCUSTODIAL SENTENCE FOR FIRST CONVICTION

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	44	20	19	37	9
Number with second reconviction	16	5	10	18	5
Number with no further reconviction	28	15	9	19	4
Rate of second reconviction	36%	25%	53%	49%	56%

$\chi^2 = 5.18$, df = 4, p = 0.27

(c) RECONVICTION WITHIN EXTENDED FOLLOW UP

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	108	55	51	94	25
Number of recidivists	85	45	42	79	21
Number of non-recidivists	23	10	9	15	4
Recidivism rate	79%	82%	82%	84%	84%

$\chi^2 = 1.10$, df = 4, p = 0.89

TABLE 18

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS ACROSS SENTENCES COMPARED ON TIME TO RECONVICTION AND SENTENCE RECEIVED

(a) TIME TO RECONVICTION

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
	N = 85	N = 45	N = 42	N = 79	N = 21
Time to reconviction (months)	Mean S.D.	Mean S.D.	Mean S.D.	Mean S.D.	Mean S.D.
	9.25 5.64	7.89 5.37	8.62 6.09	10.44 6.76	8.66 6.84

Kruskal-Wallis one-way analysis of variance ($H = 5.52$, $df = 4$, $p = 0.24$)

(b) SENTENCE RECEIVED

	CLUSTER				
	TYPE 1 (Neurotic Acting-Out)	TYPE 2 (Normal)	TYPE 3 (Disturbed)	TYPE 4 (Adolescent Delinquent)	TYPE 5 (Primary Psychopath)
Number of cases	85	45	42	79	21
Number receiving custodial	48	23	25	49	17
Number receiving non-custodial	37	22	17	30	4
Custodial Rate	57%	51%	60%	62%	81%

$\chi^2 = 5.86$, $df = 4$, $p = 0.21$

this test was non-significant (H = 5.52, df = 4, p = 0.24) as was a comparison of the clusters on custodial versus noncustodial sentences (χ^2 = 5.86, df = 4, p = 0.21). The clusters were compared also on the sentence lengths received by recidivists who were sentenced to imprisonment. Table 19 shows the mean sentence length for subjects in each personality type and the result of a Kruskal-Wallis one-way analysis of variance across clusters. This result was non-significant (H = 3.37, df = 4, p = 0.50).

Finally the clusters were compared on their offences on reconviction and on the number of offences in different categories with which they were charged. It was discovered that on five of the nine categories fewer than 10 per cent of the sample of reconvicted subjects had recorded convictions. As in the case of offences leading to the previous sentence the small number of subjects with offences in these categories were distributed across clusters except in the case of breach of the peace. Again, Normal subjects were significantly more likely than the aggregate of the other clusters to be charged with this offence (χ^2 = 15.02, df = 1, p<0.001). Moreover, only 2 of the 11 subjects charged with this offence were charged also with offences in other categories.

For the four offence categories covering the vast majority of offences the clusters were compared by χ^2 tests. Table 20 shows the one significant difference to occur in the category of dishonest against property which includes burglary, housebreaking and breaking and entering. This difference (χ^2 = 10.16, df = 4, p<0.05) results from the greater likelihood of Type 3, the Disturbed cluster, and Type 5, the Primary Psychopath group, to commit these offences. When each of these clusters is compared against the aggregate of the other groups the results are non-significant (df = 1, p>0.05). There were no further differences across clusters, nor were there differences in the number of offences committed across categories.

TABLE 19

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS ACROSS SENTENCES COMPARED ON SENTENCE LENGTH OF RECIDIVISTS SENTENCES TO IMPRISONMENT

	CLUSTER									
	TYPE 1 (Neurotic Acting-Out)		TYPE 2 (Normal)		TYPE 3 (Disturbed)		TYPE 4 (Adolescent Delinquent)		TYPE 5 (Primary Psychopath)	
	N = 33		N = 14		N = 15		N = 37		N = 16	
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
Sentence length (months)	11.06	10.85	10.64	12.54	12.20	9.39	12.05	12.80	16.08	16.87

Kruskal-Wallis one-way analysis of variance (H = 3.37, df = 4, p = 0.50)

TABLE 20

FIVE PERSONALITY TYPES OF YOUNG OFFENDERS COMPARED ON OFFENCE CATEGORIES AND NUMBER OF OFFENCES FOR WHICH SUBJECTS WERE RECONVICTED

OFFENCE CATEGORY	PERCENTAGE OF RECONVICTED SUBJECTS IN EACH CLUSTER COMMITTING OFFENCE					χ^2	p
	1	2	3	4	5		
1. Dishonest against the person	49	33	36	51	43	5.64	0.23
2. Disorderly against the person	17	11	17	13	5	2.62	0.62
3. Dishonest against property	33	31	52	39	62	10.16	0.03 *
4. Offences involving motor vehicles	29	29	26	20	19	2.58	0.63
Offences committed in more than one category	34	40	41	37	24	2.26	0.68

χ^2 computed on frequencies of cluster members present and absent on offence category.

* $p < 0.05$

In common with the study of interaction effects between type of offender and regime, the results do not support a general relationship between personality type and recidivism. Recidivists and non-recidivists were compared on age and number of previous convictions, the best established predictors of recidivism, and while there was no difference between the groups on age ($t = 0.47$, $df = 331$, one-tailed $p = 0.32$) recidivists were found on a Mann-Whitney U test (Siegel, 1956) to have a significantly greater number of previous convictions ($z = -2.98$, one-tailed $p < 0.01$). This difference reflected results in the borstal sample ($z = -2.40$, one-tailed $p < 0.01$) but in the detention centre and young prisoner samples there was no difference between the groups. In the latter sample non-recidivists actually had a higher mean number of previous convictions than recidivists ($8.54 > 7.52$).

The groups were compared on place of residence at time of sentence, and hence likely residence on release, but there was no difference on whether they returned home to the three categories of two natural parents (or wife for a small sub-group), one natural parent with or without cohabitee or elsewhere ($\chi^2 = 2.95$, $df = 4$, $p = 0.23$).

In a final consideration of the relationship between personality and recidivism recidivists and non-recidivists were compared on the twenty eight scales of the three personality tests administered. The recidivists were found to record significantly higher scores on HDHQ acted-out hostility ($t = -2.22$ $df = 331$, two-tailed $p < 0.05$) and PSI social nonconformity ($t = -3.45$, $df = 331$ two-tailed $p < 0.01$). There were no further differences between the groups. However, a Pearson product-moment correlation coefficient between number of previous convictions and social nonconformity indicated a statistically significant positive relationship between the variables ($r = 0.23$, $p < 0.001$). There was no such relationship between number of previous convictions and acted-out hostility ($r = 0.03$, $p = 0.32$). An analysis of covariance design

was adopted to examine the relationship between recidivism and social nonconformity whilst controlling for the influence of number of previous convictions. The regression option from the analysis of covariance programme from the Statistical Package for the Social Sciences (Nie et al. 1975) was selected and it was found that, having controlled for number of previous convictions and interaction effects between this variable and reconviction, recidivists and non-recidivists could still be distinguished on PSI social nonconformity ($F = 8.67$, $df = 1$, $p < 0.01$).

A discriminant function analysis was conducted to check the ease with which recidivists and non-recidivists could be distinguished on a linear combination of the personality scales. The results of this analysis are presented in Table 21. Ten of the 28 variables were included in one discriminant function which is a measure of acted-out hostility and aggression, impulsiveness and social nonconformity. However, the figure of 0.8998 for Wilks' Lambda, an inverse measure of the discriminating power of the original variables, suggests the lack of discriminating information in the personality data. This is confirmed by using the function to classify the 333 subjects when only 66 per cent of the cases were correctly classified. When this analysis was restricted to the least criminal of the samples, the detention centre group, the same variables were incorporated into the discriminant function. The figure for Wilks' Lambda was 0.7758 and 72 per cent of the cases were correctly classified by the function, indicating a marginal increase in discriminating information between recidivists and non-recidivists on a linear combination of personality variables. In this smaller sample one-tailed t-tests showed the recidivists to score significantly higher on PSI social nonconformity ($t = 1.70$, $df = 116$, $p < 0.05$) but the difference on HDHQ acted-out hostility, although in the predicted direction, did not reach the level of statistical significance ($t = 1.31$, $df = 116$, $p = 0.09$). There was no positive correlation between number of previous convictions and PSI social nonconformity

TABLE 21

(a) DISCRIMINANT FUNCTION ANALYSIS OF SCORES OF RECIDIVISTS AND NON-RECIDIVISTS ACROSS SAMPLES ON 28 PERSONALITY VARIABLES

DISCRIMINANT FUNCTION	EIGENVALUE	PERCENT OF VARIANCE	CANONICAL CORRELATION	AFTER FUNCTION	WILKS' LAMBDA	CHI-SQUARE	DEGREES OF FREEDOM	SIGNIFICANCE
				0	0.89981	34.415	10	0.000
1	0.11134	100.00	0.31652					

(b) DISCRIMINANT FUNCTION ANALYSIS OF SCORES OF RECIDIVISTS AND NON-RECIDIVISTS FROM DETENTION CENTRE SAMPLE ON 28 PERSONALITY VARIABLES

DISCRIMINANT FUNCTION	EIGENVALUE	PERCENT OF VARIANCE	CANONICAL CORRELATION	AFTER FUNCTION	WILKS' LAMBDA	CHI-SQUARE	DEGREES OF FREEDOM	SIGNIFICANCE
				0	0.77581	28.049	11	0.003
1	0.28896	100.00	0.47347					

(r = 0.01, p = 0.50), nor were there significant differences between recidivists and non-recidivists on two-tailed t-tests on the remaining personality scales.

Summary of Results

1. Young offenders (N = 344) serving detention centre, borstal and young prisoner sentences were administered the Hostility and Direction of Hostility Questionnaire (HDHQ), the Psychological Screening Inventory (PSI) and the Sixteen Personality Factor Questionnaire, Form E (16 PF). A cluster analysis of responses revealed five types which were labelled Neurotic Acting-Out, Normal, Disturbed, Adolescent Delinquent and Primary Psychopath. The stability of the cluster solution was demonstrated by the results of cluster analyses of two random sub-sets of the data.

2. The Normal, Disturbed and Adolescent Delinquent clusters were demonstrated to be similar to personality types identified in recent research. The Neurotic Acting-Out cluster resembled recent Anxious and Withdrawn types on some personality scales but, essentially, presented a different profile. The Primary Psychopath cluster represented a new type.

3. The clusters did not differ on age, number of previous convictions nor, with the exception of one minor difference between the Normal type and the rest, on offences for which they received the current sentence.

4. The cluster members released from each of the sentences were compared on indices of recidivism. There were no differences across clusters for any type of sentence. For the borstal and young prisoner prison samples the respective reconviction rates of 90 per cent after twenty-five months and 85 per cent after twenty months left little scope for the discovery of across-cluster differences in reconviction. But even with the lower reconviction rate in the detention centre sample there were no differences across clusters on a range of indices of recidivism.

5. The personality types across sentences were compared on indices of recidivism but again there were no differences. When the clusters were compared on the offence for which they reconvicted the Normal type were found more likely than the aggregate of the other groups to commit an offence of breach of the peace. One across-cluster difference was found on the offence category of Dishonest against Property, this resulting from the Disturbed and Primary Psychopath groups being more likely to commit the offence. There was no difference on the variable of number of offences committed across categories.

6. There was no difference in age between recidivists and nonrecidivists but recidivists were found to have a significantly greater number of previous convictions. When they were compared on the twenty-eight personality scales of the three tests recidivists were found to score higher on acted-out hostility (HDHQ) and social nonconformity (PSI). Social nonconformity correlated positively with number of previous convictions but when the effect of this variable was controlled for there were still differences between recidivists and non-recidivists. There were no other differences between the groups and the results of a discriminant function analysis suggest the lack of discriminating information between recidivists and non-recidivists across the twenty-eight personality variables.

CHAPTER FIVE

DISCUSSION

The Offender Typology

The five cluster solution adopted revealed three personality types of young offenders who presented similar profiles to recent types derived from the same test battery. In common with previous work two of the types were labelled Normal and Disturbed but the third similar type was called Adolescent Delinquent in preference to the previous label of Truculent.

As before the Normal group scored lowest on general hostility (HDHQ) and social nonconformity (PSI). They scored highest on the controlled factor of the 16PF and across tests their profile was marked by an absence of extreme scores. In contrast the Disturbed type recorded extreme scores on intropunitiveness and general hostility on the HDHQ, and on the 16PF they were the least emotionally stable and the most apprehensive and tense group. On the PSI they scored higher than all other groups on alienation and discomfort, thus indicating the presence of psychiatric and neurotic symptoms.

The Adolescent Delinquent group scored highest on criticism of others and acted-out hostility on the HDHQ. They were assertive and suspicious on the 16PF and on the PSI their high score on social nonconformity indicated similar responses to incarcerated offenders. They were also expressive on the PSI which suggests extraversion and undercontrol. Generally, the distinguishing scores of this type represented that complex of psychological characteristics typically assigned to young delinquents.

The Neurotic Acting-Out cluster showed certain similarities with each of the previous Anxious and Withdrawn groups. In common with Withdrawn subjects they were less intropunitive than the Anxious group on the HDHQ, but they were more extrapunitive than both other groups. They recorded similar

scores to both groups on ten factors of the 16PF but they were more venturesome and suspicious than either group and less tense than the Anxious subjects. They were similar to the Anxious group on the alienation and discomfort scales of the PSI but they were more socially nonconformist and expressive than both other groups. Across the twenty eight personality scales the scores of the Neurotic Acting-Out type suggest they are likely to act-out, rather than internalise, anxiety and this distinguishes them from the previous Anxious type. They were more hostile, anxious and outgoing and less controlled than Withdrawn subjects.

The Primary Psychopath group represented a new type from the cluster analysis of responses to the HDHQ, 16PF and PSI. The concept of psychopathy has been described by Lewis (1974) as "a most elusive category" (p. 133) but, generally, it is derived from the assumption that some individuals have in common a set of antisocial symptoms or personality traits. These symptoms and traits have led also to the use of the terms antisocial personality and sociopathy, the former being used by the World Health Organization (1968) Diagnostic and Statistical Manual of Mental Disorders (DSM - II). Individuals of this type are described as being unsocialized, impulsive, selfish, callous, irresponsible and incapable of feeling guilt.

Karpman (1948) maintained that the term psychopath was applied loosely to describe a heterogeneous range of groups linked by nothing more than a history of antisocial behaviour. More recent authors, however, have sought to specify the criteria by which psychopaths may be identified and, in a seminal consideration of this question, Cleckley (1964) listed the following as some of the main features of the psychopath : superficial charm and intelligence; absence of delusions and other signs of unbalanced thinking; absence of neurotic symptoms; unreliability and untruthfulness; lack of remorse and guilt and a general absence of affective responses. These symptoms, according to Cleckley, are disguised behind a 'convincing

mask of sanity' which only becomes displaced through repeated contact.

Buss (1966) described the psychopath in terms of personality traits as well as symptoms. The symptoms are similar to those adumbrated by Cleckley and consist of a rejection of authority and discipline, pathological lying and general antisocial behaviour. The personality traits include inconsistency and unreliability, defective personal relationships, no self-insight, an absence of guilt and a facade of competence and maturity.

Karpman (1955) and McCord and McCord (1964) have been more concise in their description of psychopaths and Robins (1966) has produced a behavioural description of psychopathy but Cleckley's definition remains the most influential contribution. Individuals meeting Cleckley's description are referred to as 'primary' psychopaths to distinguish them from individuals whose antisocial behaviour is symptomatic of underlying psychological disturbance. In the latter case the antisocial behaviour is motivated by psychological conflict and, hence, the use of the terms 'neurotic', 'secondary' or 'symptomatic' psychopathy.

The results of empirical studies support clinical use of the term psychopath. In a factor analysis of psychophysiological, personality and social history data from inmates in a maximum security hospital Hinton and O'Neill (1976) isolated a factor which was called primary psychopathy. Variables with a high loading on the factor were troublemaking, extraversion, asocial behaviour and emotional unresponsiveness. Blackburn (1971) cluster analysed the MMPI profiles of fifty six male murderers and identified four profile types, one of which conformed closely to clinical descriptions of primary psychopaths. In a subsequent study Blackburn (1975) cluster analysed the MMPI profiles of seventy nine non-psychotic male offenders in a maximum security hospital. Four-fifths of the subjects were represented in four profile types, one of which was described as undersocialized, impulsive, aggressive, extrapunitive and lacking in anxiety. These subjects were labelled

primary psychopaths. Another profile showed the same distinguishing scores but these subjects were characterised also by depression, social avoidance and a high level of anxiety. They were labelled secondary psychopaths.

Further research by McGurk and McGurk (1979) and Henderson (1982) has confirmed the occurrence of the profiles of primary and secondary psychopaths in offender populations. The type identified as primary psychopaths in the present study were low on guilt and self-criticism but highly extrapunitive on the HDHQ. They were outgoing (16PF), expressive (PSI) and free of psychological disturbance. Their scores on scales reflective of psychological wellbeing were extreme in the level of psychological integration or maturity suggested. Other scores suggested the uninhibited expression of impulses and the marriage of these features with a high level of extrapunitive hostility would seem to justify their description as primary psychopaths.

Fotheringham (1957) reviewed studies of the psychopathic personality and together with listing the main categories associated with the definition he described likely drinking patterns, sexual practices and criminal behaviour. He argued that the criminal activities of the psychopath, unlike those of the common criminal, would lack purposeful movement towards a goal and would often be badly concealed and harmful to the psychopath as well as others. The primary psychopaths in the present study did not differ from other subjects on the offences for which they were incarcerated, nor on the breadth of offences across categories. On reconviction they were found more likely, along with the Disturbed cluster, to have committed offences in the category of dishonest against property. This category includes burglary and house-breaking, both of which could be interpreted as goal-directed offences. Before this can be confirmed further information is needed on the nature of the offences, especially with regard to situational variables. It has been argued recently (McEwan, 1983) that offence categories are not a viable

parameter on which to discriminate types of young offender. They are too broad and as a result a small number of categories become over-inclusive. Thus it is suggested that more meaningful discriminations might be conducted on the situational variables of offences committed. Accordingly it cannot be reliably determined whether the primary psychopaths confirm or confound Fotheringham's predictions on criminal behaviour.

The one offence category which might be seen to incorporate limited situational information is breach of the peace. Normal subjects were more likely than the aggregate of the other groups to commit this offence before and after the current sentence, and of the eleven subjects reconvicted for this offence only two had committed offences in other categories. This finding is interesting in view of the fact that breach of the peace might arguably be considered the least criminal of the offence categories recorded.

The validity of the typology is independent of between-groups differences on offence categories or the situational factors associated with offences. Such differences would obviously support the validity of the types but, independent of them, they retain their theoretical significance. Three types were highly similar to those from recent research with the same tests and one cluster, Neurotic Acting-Out, shared attributes with previous Anxious and Withdrawn types. The newly identified type, Primary Psychopaths, represented only 7.6 per cent of the total sample and 65 per cent of this group were contained in the borstal sample. The failure of previous research to find an equivalent type is doubtless a function of Ward's (1963) hierarchical clustering technique whereby small numbers of like subjects became located in the larger cluster with whom they share greatest profile similarity. Psychopaths have been described as falling "mid-way between normality and psychosis" (Lewis, 1974, p. 133) and considering the self-report inventories administered such individuals are likely to have been included in previous Normal groups.

This is confirmed in the present study where the Normal and Primary Psychopathic groups fuse at the four cluster level.

The five personality types are consistent with other typologies of offenders and from the chart overleaf it can be seen that they fall readily within the five general categories resulting from the cross-classification of typologies. Further, these categories are consistent with five of the six produced by Warren (1971) from her earlier review of heuristic and empirical typologies. However, one of Warren's cross-classification bands would appear to be more ambiguous than in the current study. Her Asocial category embraces types ranging from the schizophrenic grouping of McGregor (1962) to Quay's unsocialized-psychopaths. The latter type would be more parsimoniously located in her category of Antisocial-manipulator, this being confirmed by further inspection of the other asocial types who have been described variously as primitive, under-inhibited, hostile, insecure, inadequate, maladaptive and alienated. These descriptions may be applied equally to the present Disturbed cluster and it would appear that Warren's Asocial band is inappropriately defined as well as being over-inclusive. Beyond the cross-classification of typologies she proceeded to outline treatment options and for this group she recommended "a setting which offers a clear and concrete structure of low pressure, warmth, and acceptance from an extremely patient parent substitute, slow and supportive direction toward conformity, and attempts to reduce the fear of abandonment and rejection via teaching rather than psychotherapy" (p. 251).

The current Asocial band embracing the Primary Psychopath cluster shares the characteristics of types defined by Warren as Antisocial-Manipulator. These offenders are guilt-free, emotionally unreactive, cynical, callous, hostile and non-trusting. Investigators across typologies are pessimistic about the effects of treatment, but two options have been proposed. First, to allow the offender to develop his skills in manipulating others in a

LOCATION OF CURRENT TYPES IN CROSS-CLASSIFICATION CHART

GROUPING	WARREN		HEWITT & JENKINS	QUAY	MEGARGEE	McGURK et al (1981)	McGURK et al (1983)	CURRENT TYPES
Asocial	I_2	Asocial aggressive	Unsocialized aggressive	Unsocialized-psychopathic	Delta			Primary Psychopath
	I_2	Asocial passive						
Neurotic	I_4	Neurotic acting-out	Overinhibited	Neurotic-disturbed	Baker George	Anxious	Withdrawn	Neurotic acting-out
	I_4	Neurotic anxious						
Socialized Delinquent	I_3	Cultural identifier	Socialized	Subcultural-socialized	Able	Truculent	Truculent	Adolescent Delinquent
	I_3	Cultural conformist						
Antisocial/ Disturbed	I_3	Manipulator			Foxtrot Charlie How	Disturbed	Disturbed	Disturbed
Normal/ Situational	I_4	Situational emotional reaction			Item Easy	Normal	Normal	Normal
Unclassified	I_2	Immature conformist		Immature-inadequate	Jupiter			

socially acceptable way, and second, to allow him to work through childhood traumas to revive the capability to depend on and care for others.

Each cross-classification resulted in a class of Neurotic Offenders and it is interesting that Warren's sub-division of this class into 'acting-out' and 'anxious' sub-types reflects the differences between the current neurotic grouping and the neurotic clusters identified previously by McGurk et al. (1981) and McGurk et al. (1983). The acting-out sub-type share the conflicts and anxieties of the other sub-type but they are acted-out rather than appearing as neurotic symptoms. This sub-type offers a direct comparison to the current Neurotic Acting-Out cluster whereas the anxious sub-type would resemble previous Anxious and Withdrawn groups. Treatment recommendations for this general band of subjects include individual, group and family psychotherapy to permit the resolution of neurotic conflicts.

The Socialized Delinquent category which includes the Adolescent Delinquent cluster offers a direct parallel to Warren's Subcultural-identifier class. These offenders are psychologically normal but have absorbed the values of a delinquent sub-culture. They are psychosocially healthy, adequate, suspicious of authority and peer-group oriented. Two levels of treatment are recommended for this type of offender : The first consists of changing his value system and encouraging him to meet status and material needs in socially approved ways; the second involves working through a relationship with a strong identity model who is representative of the larger culture.

The Normal cluster falls within the Situational/Normal class of offenders, described simply as Situational by Warren. She argued that these were normal individuals with conventional values who found themselves violating the law "as a result of accidental circumstances or a specific, nonrecurring situation which taxed their normal coping capacities" (p. 253). The Normal cluster in this study were no less criminal than the other types, but they were more likely than the other types to be convicted of breach of the peace

and this is arguably the least criminal of the offence categories examined. Treatment is generally considered unnecessary for these offenders, but if it is proposed it is directed towards solving the putative personal or social problem which led to the offence.

In the current typology there was no type to parellel Warren's category of Conformist offenders. This grouping is not represented in other typologies reviewed and, in essence, the heterogeneity of its defining characteristics together with the associated problem of cluster overlap would suggest that it is of little practical utility in considering delinquent sub-types.

The five types identified are thus consistent with previous typologies resulting from the same test battery and, also, with classification systems developed by a diversity of other methods. Noting similar consistency across typologies Warren was encouraged to believe that the "identifiable subtypes of offenders reflect at least a partial truth about the population rather than simply a convenient fantasy in the mind of the criminologist" (Warren, 1971, p. 254). Despite this optimism she was sufficiently cautious to note that the ultimate test for cross-classification would come from the typing of a population of offenders by the different classification systems. This would clarify the extent to which the sub-types in one system were the actual counterparts of those in another system.

The importance of this test is seen in a comparison of the current types with the typologies of McGurk et al. (1981) and McGurk et al. (1983). This refers both to the definition of the clusters and to the relative proportion of each sample located in the clusters. The Normal, Disturbed and Adolescent Delinquent (previously Truculent) types are consistent across

studies but despite the equivalence of the samples there are wide variations in the proportion of offenders contained in each type. These differences existed between the first two studies and it was suggested somewhat tenuously that they might be explained by reference to the dynamics of personality. For example, it was speculated that the small Truculent group discovered in the second study (9.4% of the sample) compared to the same group in the detention centre sample (33.9%) might be "explicable in the maturing of these individuals leading them to be represented in the Normal or Disturbed groups, both being subtypes with whom the Truculent subjects share common scoring patterns on certain scales" (McGurk, McEwan and McGurk, 1983, p. 169). The relative proportion of the sample contained in each of the present clusters would dismiss this speculation and, hence, alternative explanation must be sought.

The alternative explanation proposed is the same as that advanced to explain the current emergence of the Primary Psychopath cluster. It is proposed that the method for deriving the typology explains differences in the size of clusters across studies and, further, is likely to explain differences between the clusters described generally as Neurotic. There are obvious similarities between these groupings but their differences are sufficient for them to be labelled Anxious, Withdrawn and Neurotic Acting-Out respectively.

The typologies were derived from the cluster analysis of the responses of three samples of young offenders to three objective personality tests and the same clustering technique was adopted in each case. This technique is suitable for finding tight minimum variance clusters in a situation where total coverage is necessary and where there is likely cluster overlap. At each stage of the analysis the two most similar profiles are combined, this leading to the progressive reduction in groupings until only

one cluster, the original sample, remains. In the current study this technique led to a meaningful offender typology, the stability of which was demonstrated by cluster analyses of two random sub-sets of the data. The types identified suggested also the reliability of previous typologies derived by the same method. However, another clustering technique, which searches for natural sub-groupings failed to provide a meaningful solution for the development of an offender typology.

In the absence of natural sub-groupings among the data it is proposed that the hierarchical clustering algorithm and likely cluster overlap have combined to produce, first, minor differences between types across samples and, second, differences between the relative proportion of different samples located in the offender types. That the types are real and meaningful and represent a core group of similar individuals in each sample is demonstrated by the similarity coefficients resulting from comparing equivalent types across samples. These individuals should be reliably classified on each occasion. As a result of the hierarchical clustering 'less pure' individuals who either resemble more than one group or are unlike any group are assigned to types. These individuals would not be reliably classified on each occasion and, significantly, their assignment to groups can effect both the definition of the types and the relative proportion of the sample located in the type.

The present study has considered the questions of cluster stability and reliability but it is apparent that the typology based on the cluster analysis of responses to three objective tests would fail to meet other criteria proposed for the evaluation of classification systems. The types are internally meaningful and consistent but as they are not clear-cut and non-overlapping there are many barriers to be overcome before its utility is established. First, subjects who do not reflect the core grouping of the type

have to be excluded. This could be achieved by applying a range of cluster analysis techniques to the same data. This would permit the identification of subjects who are located consistently in the same groupings and, concurrently, other subjects who are difficult to classify. In fact, within certain clustering algorithms 'outliers' will be excluded from the final solution.

Should these analyses produce meaningful sub-groupings the ease with which other samples may be assigned to types requires demonstration. This could be tackled by applying the mathematical formula reflecting the linear combination of variables which best discriminated the original groupings. However, as such discriminant function techniques allocate all subjects to types there is the need for an algorithm which also excludes from allocation 'difficult to classify' individuals.

To establish the validity of the types they have to be shown to differ on variables not included in the clustering. Should this be achieved the utility of the typology based on the clustering of responses to three particular objective psychometrics will have been demonstrated. It should be noted, though, that this typology would still fail to meet one of Warren's (1971) evaluative criteria, that of complete coverage of the population.

It could be interpreted from the foregoing that the typology did not present an appropriate model to examine within-sample differences in recidivism. The purpose of the investigation, however, was to elucidate the personality characteristics associated with reduced probability of recidivism. The empirically derived typology, although not fully established, did permit this objective. Moreover, it is considered that a particular feature of the

early stage of the development of the typology has contributed to the identification of the personality characteristics linked to reduced likelihood of recidivism. This refers to the effect of the hierarchical clustering leading to the neurotic grouping falling within the acting-out sub-division of that class of offenders. Previous neurotic groups (McGurk et al., 1981; McGurk et al., 1983), each of which reconvicted to a lesser extent than other types when freed from detention centre and borstal sentences respectively, were not located in the acting-out sub-division of neurotic offenders.

Personality Types and Recidivism

The personality types in this research were serving the three forms of custodial penal sentence available for young offenders in this country. These represent very different options from the optimal treatment regimes for each type recommended by Warren (1971). The custodial regimes for offenders serving each sentence are described differently and serve different functions for the judiciary but it remains to be proven whether they afford a different set of experiences to their captive populations.

Kassebaum et al. (1971) examined the hypothesis that group counselling in prison would have a corrective effect by achieving open communication and the consequent reduction of prisoners' adherence to the

traditional anti-staff values of the inmate culture. During such a programme the views of participants were assessed by questionnaire. It was discovered that changes in attitude were not taking place but, also, that experimental subjects were bored and dissatisfied with the programme. On a parole follow-up the authors were not surprised to discover that the experimental group did no better than a control sample.

Bottoms and McClintock (1973) describe a list of changes that occurred in a deliberately modified borstal regime. The aim of these changes which took place over a four year period was to divert more care and attention to the needs of the individual offender. The authors report that staff became more treatment-oriented and that an improved social climate resulted from structural and attitudinal changes. Despite these findings they question the significance of the changes in modifying the essential experience of incarceration for young offenders. The basic elements of the regime remained intact and the inmates had the same employment and recreational options as before. The progress on release of subjects from the modified regime was compared to that of inmates freed before the regime modification but there were no differences.

Jesness (1965) reports some positive results in the Fricot Ranch experiment in which the effect of an experimental treatment condition on subsequent parole revocation was examined. The design achieved its aim of improving the quality and frequency of staff-inmate contact in the treatment condition but Jesness remarks that maintaining order and discipline remained the first priority of group supervisors who acted as counsellors.

The findings of Kassebaum et al. and the warnings expressed by Bottoms and McClintock and Jesness prescribe guidelines to be followed should one offender-type consistently behave differently from other types when released from the same sentence. A systematic attempt should be made, first,

to elicit the critical features of the regime which have contributed to the finding and, second, the proposed impact of those features on the offender-type should be explained. This would be best achieved by the comparative analysis of regimes and various proposals have been made in this area including the analysis of ideological, organizational and staffing variables (Tizard, Sinclair and Clarke, 1975) and the objective assessment of the dimensions of the social climate of the institution (Moos, 1975). Moreover these strategies might be enhanced by the additional assessment of behavioural indices of institutional tension. Zeeman et al. (1976) succeeded in applying catastrophe theory (Thom, 1972) to prison riots, using as behavioural indices the incidence of inmates reporting sick, the incidence of reports of offences committed against prison discipline and the incidence of governor's applications which tend to reflect inmate grievances. More recently Harwood et al. (1977) used these indices as dependent variables in a study of regime changes in a training prison. These authors found reduced levels of institutional tension to be associated with changes that were described as moving towards 'humane containment'.

The present investigation examined the post-release behaviour of five personality types of young offenders freed from three nominally different types of sentences, each of which represented very different conditions from the optimal treatment strategies prescribed in the literature for equivalent types. There were no differences between types on indices of reconviction when released from each of the sentences. This does not imply the comparability of the sentences but simply their equivalence in failing to produce across-type differences in reconviction. Indeed, had one type of offender been found to behave differently from other groups when released from each of the three sentences this could still not be taken as indicating the equivalence of the experiences afforded to their respective populations. It might be discovered,

for example, that the same offender type would do better when released from the very different condition of a non-custodial sentence.

The reported results fail to confirm the previous work which found across-cluster differences in reconviction in detention centre and borstal samples. Relative to these studies, however, the scope for the discovery of across-cluster differences in reconviction in detention centre and borstal subjects was reduced. In the detention centre study reported by McGurk et al. (1981) 60.8 per cent of the subjects released in 1973/74 were reconvicted within a two-year period. In the borstal study (McGurk et al., 1983) 77.7 per cent of the subjects released in 1975/76 were reconvicted within a three-year period. In the current research 69.5 per cent of the detention centre sample were reconvicted in 23 months while 90.2 per cent of the borstal sample were reconvicted in 26 months. Of the young prisoner subjects 84.7 per cent reconvicted in 21 months.

Those differences in reconviction rates between the previous studies and the current research reflect a general trend of increased recidivism in young offenders released from custodial sentences. The most recent annual government publication of prison statistics (HMSO, 1982) presents national reconviction rates on a two-year follow-up for young offenders released from detention centre, borstal and young prisoner sentences in the years 1972-79. In this seven year period the percentage reconviction rates increased for detention centre (64>54), borstal (69>63) and young prisoner sentences (69>64). The changes in reconviction rates over the seven-year period and the differences between the national figures for 1979 and those of the current samples could reflect a range of variables from sentencing practices to the effect of social factors on the conditions to which offenders are released. They are not necessarily a measure of the reduced effectiveness of regimes in combating recidivism.

The very high reconviction rates reported for the borstal and young prisoner samples afforded little scope for the discovery of across-cluster differences in reconviction but the recidivism rate for the detention centre sample is less than that in the previous borstal study which reported positive results (McGurk et al., 1983). Thus additional explanation must be sought for the absence of significant across-cluster differences in reconviction in the present research. It is proposed that this explanation relates essentially to differences in personality between the present Neurotic Acting-Out type and previous Anxious and Withdrawn types. All three types would be contained within Warren's (1971) band of "neurotic" offenders in which symptoms of maladjustment are present but the Neurotic Acting-Out type, unlike Anxious and Withdrawn types, would fall within that sub-division of offenders whose conflicts and anxieties are expressed. The Neurotic Acting-Out type share the high scores of the Anxious type on scales assessing psychological maladjustment but, in contrast, they are extrapunitive, rather than intropunitive, and socially nonconformist and expressive. Compared to the Withdrawn group they are more extrapunitive, venturesome, outgoing, socially nonconformist and expressive.

The previous Anxious and Withdrawn personality types differ in their level of general anxiety but both groups are intropunitive, shy, submissive, accommodating and introverted. These common characteristics differentiate them from the Neurotic Acting-Out type and thus can be assumed to represent the grouping of personality traits associated with reduced recidivism in recent studies of detention centre and borstal samples. In the current examination none of the empirically derived personality types demonstrated a high loading on these variables and this is likely to explain the absence of across-cluster differences in recidivism in the detention centre sample and, also across the three regimes studied.

This reasoning would be supported by direct comparison across-regimes

of recidivists and non-recidivists on the twenty-eight scales of the three personality tests. The fact that comparisons on twenty-eight scales produced only two statistically significant differences might be interpreted as a degree of variation only marginally greater than chance. The significant differences, however, are on variables which differentiate the present Neurotic Acting-Out type from previous Anxious and Withdrawn types. Recidivists were found to record higher scores on HDHQ acted-out hostility, which assesses the urge to act-out hostility and aggression, and PSI social nonconformity, which measures a similarity in response style to that of offenders whose antisocial behaviour has resulted in their incarceration. Recidivists were also more extrapunitive on the HDHQ and more expressive on the PSI but the levels of difference did not reach statistical significance. The absence of differences on the 16PF can be attributed partly to a range of eight scale points in raw scores affording reduced scope for between-groups discrimination. This is in contrast to the greater range of HDHQ and, especially, PSI scales.

The results of the discriminant function analysis suggest the lack of discriminating information between recidivists and non-recidivists on the personality data. Nevertheless, within this limitation, the linear combination of variables derived to discriminate between the groups is founded on the dimensions of hostility, aggression and social nonconformity. When this analysis is restricted to the results of the detention centre subjects, the least criminal of the samples, the same nucleus of variables are incorporated into the discriminant function but the amount of discriminating information across the personality scales is marginally increased. This suggests that the discriminative ability of personality variables between recidivists and non-recidivists is likely to be inversely related to the number of previous convictions of subjects, a conclusion which would be supported by further examination of the results of McGurk et al. (1981) and McGurk et al. (1983). In the former study Anxious subjects were less likely to reconvict than the

aggregate of the other groups, but this difference existed only between those subjects with less than six previous convictions. In the latter study differences in reconviction between the Withdrawn group and the remainder existed only for subjects with less than eight previous convictions.

Further support for the critical nature of the differences in personality between the previous Anxious and Withdrawn groups and the current Neurotic Acting-Out type can be found in a study by McGurk et al. (1978). These authors compared recidivists and non-recidivists on a range of psychological, criminological and educational variables. The psychological variables included the three tests administered in the present study and recidivists were discovered to be more extrapunitive on the HDHQ and more socially nonconformist on the PSI. The sample were less criminal and the sub-groups were of greater equivalence in size than in the present research and differences between recidivists and non-recidivists were found also on two 16PF scales : Recidivists scored lower on Factor G (Conscientious) and higher on Factor L (Suspicious). It was noted by the authors that "recidivists higher level of extrapunitive hostility identified by the HDHQ is corroborated by their higher scores on 16PF Factor L, and their lower scores on superego strength (16PF Factor G) by the social nonconformity scale of the PSI" (p. 253). These findings reinforce the present results concerning recidivists and non-recidivists but, further, they assist the explanation of the absence of across-cluster differences in reconviction. The Neurotic Acting-Out type scored higher on 16PF Factor L (Suspicious) and lower on 16PF Factor G (Conscientious) than both previous Anxious and Withdrawn groups.

West and Farrington (1973) report interesting findings in view of the personality factors claimed to be associated with non-recidivism. They followed-up a sample of boys aged 8-9 for a period of ten years to discover 'who becomes delinquent'. It emerged among more general findings that delinquents were significantly less often 'nervous-withdrawn' than non-

delinquents. Delinquents and non-delinquents did not differ on 'neurotic-extraversion' and it was reasoned by the authors that a "shy, timid temperament tended to prevent a boy becoming delinquent" (p. 115). It would appear from the synthesis of the present results with other reported findings that this temperament also helps prevent convicted delinquents from becoming recidivists.

The results of Jesness (1965) do not support the proposed critical nature of the divide between 'withdrawn' and 'acting-out' subjects in the general class of neurotic offenders. He reviewed the progress of eight sub-types of delinquents when released from experimental and control conditions in the Fricot Ranch project. Experimental subjects spent their sentence in a 20-boy lodge in the institution while control subjects were housed in a lodge of fifty inmates. A one-year follow-up of parole revocation rates demonstrated three sub-types to do better when released from the experimental condition. These sub-types included 'neurotic-anxious', 'neurotic-depressed' and, also, 'neurotic acting-out' offenders. Similarly, Palmer (1974) reports that both 'neurotic-anxious' and 'neurotic acting-out' subjects demonstrated lower rates of parole failure when freed from the experimental rather than the control condition of the Community Treatment Project. It has been argued previously, though, that a different criterion of success and failure was applied to the experimental and control conditions (Empey and Erickson, 1972). Lukin (1981) related the covariates of personality and recidivism to change scores during residential treatment on a behaviour checklist (Jesness, 1971). Among non-recidivists she found 'neurotic acting-out' subjects to demonstrate significant levels of positive change on some of the fourteen scales while among recidivists she found 'neurotic-anxious' subjects to record positive changes.

The distinction between neurotic sub-types observed by Jesness, Warren and Palmer and Lukin has been facilitated by their classification of

subjects according to Interpersonal Maturity Levels. One general stage of interpersonal maturity (I-level 4) sub-divides into 'neurotic acting-out' and 'neurotic anxious' subjects. This distinction has been masked generally by more inclusive analyses between a general class of neurotic offenders and other groups. The present results seen in the light of earlier findings suggest that the distinction could be critical in the relationship between personality and recidivism. There remains, however, the question of the explanation of this relationship.

One possible hypothesis is that neurotic withdrawn offenders as a result of their personalities have been less exposed than other offenders to the influences of 'prisonization' and 'criminalization'. Prisonization refers to the assimilation of the prison culture by inmates, the term being defined by Clemmer (1940) as "the taking on in greater or less degree of the folkways, mores, customs, and general culture of the penitentiary" (p. 229). The related concept of criminalization refers to the effect of incarceration in both strengthening favourable attitudes towards criminality and enhancing the skills relevant for criminal behaviour. Erickson (1964) states that penal institutions "gather marginal people into highly segregated groups, give them an opportunity to teach each other the skills and attitudes of a deviant career, and often provoke them into employing these skills by reinforcing their sense of alienation from the rest of society" (p. 15-16). This comment exemplifies the concomitant effects of incarceration in strengthening criminal associations and weakening associations with society in general.

Thus some research findings have demonstrated the probability of recidivism to be increased by custodial sentences and longer periods of incarceration. Kraus (1974) compared matched samples of probationers and incarcerated young offenders and found the former group to reconvict to a statistically significant lesser extent. This result held for first offenders and recidivists but, in contrast, Wilkins (1958) and Pond (1970) have found

probation to be neither better, nor worse, than custody in preventing recidivism.

Jaman (1968a, 1968b) claimed that longer sentences increased recidivism but Banks (1964) and Mueller (1965) were unable to discover any such relationship. These studies, however, together with investigations of the comparative efficacy of custodial versus non-custodial penalties have not examined the effects of prisonization and criminalization per se. Empirical studies of the concepts confirm their impact on imprisoned offenders.

Thomas (1973) found that scores on scales of prisonization were negatively correlated with the number of letters and visits received by prisoners. Bondesen (1969) discovered that degree of socialization into the prison culture increased with length of incarceration and was positively correlated with recidivism. Garabedian (1963) examined roles in the inmate social system and found their values to conflict with those of staff. He did identify one group of prisoners, less than 10 per cent of the sample, who did not demonstrate a consistent adherence to the values of the inmate culture. These inmates during the course of their sentence demonstrated a progressive increase in conformity to staff norms, this being taken by the author to suggest the operation of social processes which could prove to be reformative.

In common with this small group of offenders identified by Garabadian it is conceivable that neurotic-withdrawn inmates become less involved in an inmate culture which is influential in maintaining criminal behaviour. These subjects continue to recidivate but at a reduced rate compared to other personality types and this difference cannot be explained by reference to age, prior criminality or current offence. Nor can it be attributed to increased psychological maturity as neurotic-withdrawn subjects share the same I-level classification as the Neurotic Acting-Out type. It is not an implausible hypothesis therefore that the reduced likelihood of reconviction of neurotic-

withdrawn offenders is due to the effects of differential rate of exposure to the norms and values of the inmate culture.

This hypothesis relates only to the explanation of the proposed association between the Neurotic-withdrawn personality type and reduced likelihood of recidivism. It does not seek to deny the influence of criminological (Walker et al., 1981), social (Gendreau et al., 1980) and family variables (Coull et al., 1982), but simply to suggest a likely operational effect of the personality characteristics viewed as important in the general equation for the prediction of recidivism. It has been stated previously that studies of recidivism should consider incarcerated offenders' immediate reactions to the formal organization of the institution (Miller and Dinitz, 1973) but this hypothesis would suggest that this be extended to the informal organization of the inmate culture.

Overview

The present research did not find differences between empirically derived personality types on indices of reconviction. None of the personality types identified could be described as neurotic-withdrawn and it is suggested that it is this particular type which is associated with reduced likelihood of recidivism. It is suggested further that this association is explained by neurotic-withdrawn subjects being less exposed than other personality types to the influence of criminalization.

It is recommended therefore that future studies of the relationship between personality and recidivism should seek to differentiate between neurotic-withdrawn offenders and other personality types. A further recommendation is for the adoption of a wider frame of reference than the direct relationship between the variables and this is accompanied by the caveat that studies should be confined to offenders below a high level of

criminal experience.

The inclusion of a non-custodial sentence option is also suggested. This would provide an obviously different condition to custodial sentences, the impact of which may be more equivalent than suggested by descriptive analysis. It is conceivable that another personality type of offender could be found to reconvict at a different rate from other types when given this form of sentence but, equally important, it serves as a control to the proposed effects of prisonization and criminalization on incarcerated neurotic-withdrawn offenders.

On the more general question of the efficacy of regimes the reconviction rates across the three sentences confirm the conclusion that 'nothing works' in the treatment of young offenders. This conclusion would hold even in further demonstration of the relationship between the neurotic-withdrawn personality and reduced likelihood of recidivism. This effect refers to one group of offenders, and only to those members of the group with fewest previous convictions. Moreover, its proposed explanation relates to an artefact rather than to features of the regime design.

Given the failure of penal treatments to change the offender it is difficult to disagree with Clarke (1977, 1980) that a more effective model of crime prevention might consider situational determinants of criminality. Furthermore, unlike dispositional approaches which stress the importance of offender characteristics, this model is consistent with the findings, first, that offending is not restricted to a minority of deviant individuals (Belson, 1975) and, second, that most delinquents desist from offending when they reach early adulthood (Trasler, 1979).

APPENDIX A

Dissimilarity Coefficients - ie Distance Coefficients - for final 20 fusions of the hierarchical clustering of 344 subjects

Fusion No.	No. of Clusters	Dissimilarity Coefficient
324	20	4.96
325	19	5.21
326	18	5.32
327	17	5.44
328	16	5.73
329	15	6.17
330	14	6.27
331	13	7.31
332	12	7.45
333	11	8.17
334	10	9.69
335	9	10.82
336	8	11.05
337	7	11.96
338	6	12.86
339	5	13.94
340	4	19.72
341	3	23.91
342	2	39.41
343	1	60.90

APPENDIX B(i)

Comparison of Mean (Raw) Scores of Type 1 with Type 1 from Previous Studies on 28 Personality Scales

	PERSONALITY SCALE	TYPE 1	'Anxious' McGurk et al (1981)	'Withdrawn' McGurk et al (1983)
HDHQ	GUILT	3.62	4.45	3.43
	SELF-CRITICISM	5.23	6.88	4.96
	PROJECTED HOSTILITY	3.40	2.57	1.85
	ACTED OUT HOSTILITY	6.37	5.23	4.53
	CRITICISM OF OTHERS	7.61	6.46	5.74
	GENERAL HOSTILITY	26.23	25.57	20.51
	DIRECTION OF HOSTILITY	-3.50	3.72	0.53
16PF	OUTGOING	4.18	4.37	3.53
	INTELLIGENT	6.02	6.32	6.98
	EMOTIONALLY STABLE	4.11	3.90	4.28
	ASSERTIVE	3.65	2.92	2.70
	HAPPY-GO-LUCKY	4.95	5.13	3.96
	CONSCIENTIOUS	3.96	4.37	4.40
	VENTURESOME	3.30	2.24	2.30
	TENDERMINDED	2.83	3.06	2.21
	SUSPICIOUS	3.78	2.57	2.66
	IMAGINATIVE	3.70	3.14	3.55
	SHREWD	4.11	3.93	4.00
	APPREHENSIVE	4.52	5.08	4.81
	EXPERIMENTING	4.62	4.47	5.19
	SELF-SUFFICIENT	4.12	4.10	5.23
	CONTROLLED	4.17	4.19	4.08
	TENSE	3.96	4.70	3.60
PSI	ALIENATION	9.65	9.60	7.60
	SOCIAL NONCONFORMITY	14.36	12.30	13.17
	DISCOMFORT	12.57	13.65	11.17
	EXPRESSION	12.57	10.84	9.72
	DEFENSIVENESS	10.07	11.05	11.68

APPENDIX B(ii)

Comparison of Mean (Raw) Scores of Type 2 with Type 2 from Previous Studies on 28 Personality Scales

	PERSONALITY SCALE	TYPE 2	'Normal' McGurk et al (1981)	'Normal' McGurk et al (1983)
HDHQ	GUILT	2.54	1.96	2.33
	SELF-CRITICISM	3.89	2.76	3.43
	PROJECTED HOSTILITY	2.20	1.36	1.89
	ACTED OUT HOSTILITY	5.34	3.96	4.54
	CRITICISM OF OTHERS	6.23	4.20	6.00
	GENERAL HOSTILITY	20.20	14.20	18.16
	DIRECTION OF HOSTILITY	-3.20	-2.28	-3.23
16PF	OUTGOING	3.91	3.64	4.80
	INTELLIGENT	7.16	7.28	7.15
	EMOTIONALLY STABLE	4.71	6.16	5.25
	ASSERTIVE	2.91	2.36	3.64
	HAPPY-GO-LUCKY	6.18	5.92	6.36
	CONSCIENTIOUS	4.29	4.32	4.89
	VENTURESOME	3.63	4.16	5.21
	TENDERMINDED	1.68	2.44	1.98
	SUSPICIOUS	2.78	2.68	3.05
	IMAGINATIVE	3.18	3.24	3.23
	SHREWD	4.14	4.04	3.69
	APPREHENSIVE	3.34	3.48	3.10
	EXPERIMENTING	4.63	5.40	4.85
	SELF-SUFFICIENT	2.66	4.12	2.05
	CONTROLLED	5.21	5.40	5.56
	TENSE	2.13	1.68	2.31
PSI	ALIENATION	6.77	7.60	7.54
	SOCIAL NONCONFORMITY	13.79	10.36	13.80
	DISCOMFORT	8.52	5.68	6.67
	EXPRESSION	12.98	11.32	14.36
	DEFENSIVENESS	11.96	12.92	11.52

APPENDIX B(iii)

Comparison of Mean (Raw) Scores of Type 3 with Type 3 from Previous Studies on 28 Personality Scales

	PERSONALITY SCALE	TYPE 3	'Disturbed' McGurk et al (1981)	'Disturbed' McGurk et al (1983)
HDHQ	GUILT	5.57	5.04	4.70
	SELF-CRITICISM	7.49	6.97	7.18
	PROJECTED HOSTILITY	4.81	4.04	3.95
	ACTED OUT HOSTILITY	7.64	8.19	7.34
	CRITICISM OF OTHERS	8.75	8.64	8.52
	GENERAL HOSTILITY	34.23	33.10	31.68
	DIRECTION OF HOSTILITY	-0.70	-1.87	-0.79
16PF	OUTGOING	4.58	4.29	4.84
	INTELLIGENT	6.87	6.76	5.88
	EMOTIONALLY STABLE	2.89	3.16	3.61
	ASSERTIVE	3.89	4.19	4.52
	HAPPY-GO-LUCKY	5.13	5.76	5.39
	CONSCIENTIOUS	4.15	4.04	3.73
	VENTURESOME	2.00	2.69	3.32
	TENDERMINDED	2.42	3.62	2.77
	SUSPICIOUS	3.77	3.96	4.39
	IMAGINATIVE	3.26	3.57	3.30
	SHREWD	3.92	3.65	3.86
	APPREHENSIVE	5.87	5.51	4.93
	EXPERIMENTING	4.30	4.57	4.43
	SELF-SUFFICIENT	4.15	3.76	3.21
	CONTROLLED	3.87	3.91	4.11
	TENSE	5.98	5.82	4.82
PSI	ALIENATION	12.13	10.83	11.06
	SOCIAL NONCONFORMITY	16.21	15.21	16.21
	DISCOMFORT	16.25	16.15	14.75
	EXPRESSION	12.02	12.09	12.75
	DEFENSIVENESS	8.98	9.13	9.04

APPENDIX B(iv)

Comparison of Mean (Raw) Scores of Type 4 with Type 4 from Previous Studies on 28 Personality Scales

	PERSONALITY SCALE	TYPE 4	'Truculent' McGurk et al (1981)	'Truculent' McGurk et al (1983)
HDHQ	GUILT	3.73	3.02	2.24
	SELF-CRITICISM	4.42	4.57	3.76
	PROJECTED HOSTILITY	4.05	3.28	2.82
	ACTED OUT HOSTILITY	8.96	7.42	9.06
	CRITICISM OF OTHERS	9.02	8.28	8.00
	GENERAL HOSTILITY	30.18	26.71	25.94
	DIRECTION OF HOSTILITY	-9.38	-6.78	-10.12
16PF	OUTGOING	4.10	4.09	4.47
	INTELLIGENT	6.95	7.20	7.12
	EMOTIONALLY STABLE	3.74	3.82	3.47
	ASSERTIVE	5.32	5.20	5.76
	HAPPY-GO-LUCKY	6.50	6.30	6.53
	CONSCIENTIOUS	2.67	2.56	2.00
	VENTURESOME	4.14	3.82	4.00
	TENDERMINDED	2.41	2.45	2.35
	SUSPICIOUS	5.29	5.28	5.76
	IMAGINATIVE	3.73	3.30	3.47
	SHREWD	3.52	3.47	3.53
	APPREHENSIVE	4.32	4.08	4.41
	EXPERIMENTING	5.06	5.33	5.47
	SELF-SUFFICIENT	3.51	3.27	2.53
	CONTROLLED	3.50	3.97	3.82
	TENSE	3.43	3.35	3.59
PSI	ALIENATION	8.65	8.66	7.35
	SOCIAL NONCONFORMITY	16.96	16.70	17.29
	DISCOMFORT	10.86	10.85	9.29
	EXPRESSION	15.79	14.09	14.00
	DEFENSIVENESS	8.45	9.68	9.18

APPENDIX C

DISCRIMINANT FUNCTION ANALYSIS OF SCORES OF FIVE PERSONALITY TYPES OF YOUNG OFFENDERS ON ORIGINAL 28 PERSONALITY VARIABLES

I 25 PERSONALITY VARIABLES INCLUDED IN FOUR DISCRIMINANT FUNCTIONS

		STANDARDISED DISCRIMINANT FUNCTION COEFFICIENTS			
	VARIABLE	FUNCTION 1	FUNCTION 2	FUNCTION 3	FUNCTION 4
HDHQ	CRITICISM OF OTHERS	0.009	-0.069	0.138	0.744
	PROJECTED HOSTILITY	0.053	-0.233	-0.061	0.213
	GUILT	0.075	0.182	-0.300	-0.145
	GENERAL HOSTILITY	0.352	0.332	-0.102	-0.581
	DIRECTION OF HOSTILITY	0.224	-0.583	-0.075	0.465
16PF	OUTGOING	0.024	0.088	0.256	0.577
	INTELLIGENT	0.015	0.172	-0.585	0.157
	EMOTIONALLY STABLE	-0.049	0.131	0.375	-0.069
	HAPPY-GO-LUCKY	-0.094	0.040	-0.441	0.001
	CONSCIENTIOUS	0.117	-0.061	-0.038	0.272
	VENTURESOME	-0.210	0.199	0.210	-0.209
	TENDERMINDED	-0.116	0.112	0.202	0.019
	SUSPICIOUS	0.002	0.194	0.183	-0.038
	IMAGINATIVE	0.023	0.087	0.259	0.012
	SHREWD	-0.001	-0.148	0.177	0.076
	APPREHENSIVE	0.093	0.148	0.022	-0.223
	EXPERIMENTING	-0.114	0.095	0.142	0.108
	SELF-SUFFICIENT	0.076	0.166	0.091	-0.073
	CONTROLLED	-0.069	-0.237	-0.157	0.244
	TENSE	0.366	0.059	0.045	0.275
PSI	ALIENATION	0.270	0.044	0.169	0.308
	SOCIAL NONCONFORMITY	-0.016	0.200	-0.215	0.273
	DISCOMFORT	0.157	-0.057	0.121	-0.153
	EXPRESSION	-0.091	0.273	-0.144	0.280
	DEFENSIVENESS	-0.101	-0.295	-0.153	-0.041

II DISCRIMINANT FUNCTIONS EVALUATED AT CLUSTER MEANS

	FUNCTION 1	FUNCTION 2	FUNCTION 3	FUNCTION 4
TYPE 1 (Neurotic Acting Out)	0.325	-0.543	0.687	-0.131
TYPE 2 (Normal)	-1.288	-1.602	-0.720	-0.150
TYPE 3 (Disturbed)	2.333	-0.046	-0.480	0.520
TYPE 4 (Adolescent Delinquent)	-0.215	1.398	-0.233	-0.354
TYPE 5 (Primary Psychopath)	-2.642	0.893	0.334	1.125

APPENDIX D(1)

Dissimilarity Coefficients - ie Distance Coefficients - for final 20 fusions of the hierarchical clustering of first random sub-set of 172 subjects

Fusion No.	No. of Clusters	Dissimilarity Coefficient
152	20	2.84
153	19	2.85
154	18	3.26
155	17	3.34
156	16	3.70
157	15	3.91
158	14	3.95
159	13	3.97
160	12	4.74
161	11	4.88
162	10	5.19
163	9	5.55
164	8	5.88
165	7	6.24
166	6	6.60
167	5	8.65
168	4	11.31
169	3	14.48
170	2	19.39
171	1	39.77

APPENDIX D (ii)

Dissimilarity Coefficients - ie Distance Coefficients - for final 20 fusions of the hierarchical clustering of second random sub-set of 172 subjects

Fusion No.	No. of Clusters	Dissimilarity Coefficient
152	20	3.12
153	19	3.14
154	18	3.31
155	17	3.45
156	16	3.49
157	15	3.69
158	14	4.01
159	13	4.25
160	12	4.68
161	11	4.76
162	10	4.84
163	9	5.42
164	8	5.61
165	7	6.22
166	6	7.80
167	5	9.49
168	4	11.47
169	3	12.90
170	2	20.95
171	1	36.04

APPENDIX E(i)

Descriptive Analysis of Mean (Raw) Scores of 'Neurotic Acting Out' Type on 28 Personality Scales with Scores of Similar Types from Random Sub-sets

	PERSONALITY SCALE	'Neurotic Acting Out' Cluster (N = 115)	Cluster from 1st Sub-set (N = 34)	Cluster from 2nd Sub-set (N = 41)
HDHQ	GUILT	3.62	4.18	4.51
	SELF-CRITICISM	5.23	6.03	4.90
	PROJECTED HOSTILITY	3.40	4.74	4.78
	ACTED OUT HOSTILITY	6.37	7.62	7.41
	CRITICISM OF OTHERS	7.61	8.15	8.63
	GENERAL HOSTILITY	26.23	30.65	30.29
	DIRECTION OF HOSTILITY	-3.50	-4.44	-6.43
16PF	OUTGOING	4.18	4.18	4.00
	INTELLIGENT	6.02	5.41	5.34
	EMOTIONALLY STABLE	4.11	3.71	3.54
	ASSERTIVE	3.65	3.85	3.90
	HAPPY-GO-LUCKY	4.95	5.94	4.68
	CONSCIENTIOUS	3.96	3.62	4.00
	VENTURESOME	3.30	3.85	3.46
	TENDERMINDED	2.83	3.47	2.98
	SUSPICIOUS	3.78	4.38	4.17
	IMAGINATIVE	3.70	4.44	3.46
	SHREWD	4.11	4.09	3.76
	APPREHENSIVE	4.52	4.50	4.90
	EXPERIMENTING	4.62	4.29	4.07
	SELF-SUFFICIENT	4.12	3.65	4.32
	CONTROLLED	4.17	4.09	4.20
	TENSE	3.96	3.82	4.49
PSI	ALIENATION	9.65	10.88	10.63
	SOCIAL NONCONFORMITY	14.36	14.38	15.68
	DISCOMFORT	12.57	13.32	13.58
	EXPRESSION	12.57	14.58	13.41
	DEFENSIVENESS	10.07	9.94	10.15

APPENDIX E(ii)

Descriptive Analysis of Mean (Raw) Scores of 'Normal' Type on 28 Personality Scales with Scores of Similar Types from Random Sub-sets

	PERSONALITY SCALE	'Normal' Cluster (N = 56)	Cluster from 1st Sub-set (N = 42)	Cluster from 2nd Sub-set (N = 42)
HDHQ	GUILT	2.54	2.60	4.19
	SELF-CRITICISM	3.89	4.10	5.64
	PROJECTED HOSTILITY	2.20	2.62	2.33
	ACTED OUT HOSTILITY	5.34	5.48	5.50
	CRITICISM OF OTHERS	6.23	6.47	6.95
	GENERAL HOSTILITY	20.20	21.26	24.62
	DIRECTION OF HOSTILITY	-3.20	-3.79	0.64
16PF	OUTGOING	3.91	3.83	4.31
	INTELLIGENT	7.16	6.55	7.19
	EMOTIONALLY STABLE	4.71	4.33	5.14
	ASSERTIVE	2.91	3.24	3.19
	HAPPY-GO-LUCKY	6.18	5.31	5.05
	CONSCIENTIOUS	4.29	4.36	5.02
	VENTURESOME	3.63	3.14	2.90
	TENDERMINDED	1.68	2.26	2.02
	SUSPICIOUS	2.78	3.07	2.90
	IMAGINATIVE	3.18	3.62	3.52
	SHREWD	4.14	3.90	4.40
	APPREHENSIVE	3.34	3.92	4.64
	EXPERIMENTING	4.63	4.83	4.71
	SELF-SUFFICIENT	2.66	3.83	4.05
	CONTROLLED	5.21	4.24	4.60
	TENSE	2.13	2.81	3.43
PSI	ALIENATION	6.77	8.00	9.29
	SOCIAL NONCONFORMITY	13.79	13.98	13.69
	DISCOMFORT	8.52	11.29	11.00
	EXPRESSION	12.98	11.76	11.55
	DEFENSIVENESS	11.96	10.48	10.64

APPENDIX E(iii)

Descriptive Analysis of Mean (Raw) Scores of 'Adolescent Delinquent' Type on 28 Personality Scales with Scores of Similar Types from Random Sub-sets

	PERSONALITY SCALE	'Adolescent Delinquent' Cluster (N = 94)	Cluster from 1st Sub-set (N = 28)	Cluster from 2nd Sub-set (N = 43)
HDHQ	GUILT	3.73	3.85	3.72
	SELF-CRITICISM	4.42	7.73	5.19
	PROJECTED HOSTILITY	4.05	3.04	4.40
	ACTED OUT HOSTILITY	8.96	9.07	8.98
	CRITICISM OF OTHERS	9.02	9.43	8.88
	GENERAL HOSTILITY	30.18	30.03	31.21
	DIRECTION OF HOSTILITY	-9.38	-8.21	-8.02
16PF	OUTGOING	4.10	4.17	4.46
	INTELLIGENT	6.95	7.29	7.21
	EMOTIONALLY STABLE	3.74	3.60	2.79
	ASSERTIVE	5.32	5.61	5.35
	HAPPY-GO-LUCKY	6.50	6.93	6.30
	CONSCIENTIOUS	2.67	2.10	2.79
	VENTURESOME	4.14	3.64	2.84
	TENDERMINDED	2.41	2.79	1.98
	SUSPICIOUS	5.29	5.93	5.05
	IMAGINATIVE	3.73	3.11	3.16
	SHREWD	3.52	3.21	3.95
	APPREHENSIVE	4.32	5.04	4.79
	EXPERIMENTING	5.06	5.14	5.19
	SELF SUFFICIENT	3.51	3.43	3.88
	CONTROLLED	3.50	3.25	3.02
	TENSE	3.43	4.07	4.19
PSI	ALIENATION	8.65	8.03	9.34
	SOCIAL NONCONFORMITY	16.96	17.32	17.67
	DISCOMFORT	10.86	12.00	12.56
	EXPRESSION	15.79	14.21	13.51
	DEFENSIVENESS	8.45	7.32	8.79

APPENDIX E(iv)

Descriptive Analysis of Mean (Raw) Scores of 'Primary Psychopath' Type on 28 Personality Scales with Scores of Similar Types from Random Sub-sets

	PERSONALITY SCALE	'Primary Psychopath' Cluster (N = 26)	Cluster from 1st Sub-set (N = 35)	Cluster from 2nd Sub-set (N = 25)
HDHQ	GUILT	1.50	2.11	3.08
	SELF-CRITICISM	2.08	3.00	4.00
	PROJECTED HOSTILITY	2.23	2.71	3.40
	ACTED OUT HOSTILITY	6.77	6.57	8.68
	CRITICISM OF OTHERS	8.54	7.74	9.24
	GENERAL HOSTILITY	21.15	22.11	28.44
	DIRECTION OF HOSTILITY	-11.85	-9.02	-9.44
16PF	OUTGOING	5.77	5.00	5.36
	INTELLIGENT	7.19	7.23	7.04
	EMOTIONALLY STABLE	5.08	5.00	4.36
	ASSERTIVE	4.81	4.11	5.28
	HAPPY-GO-LUCKY	7.19	7.00	7.40
	CONSCIENTIOUS	3.31	3.20	2.48
	VENTURESOME	6.19	5.74	6.24
	TENDERMINDED	2.92	2.29	2.44
	SUSPICIOUS	4.69	4.06	5.44
	IMAGINATIVE	4.08	3.74	3.92
	SHREWD	4.04	3.57	3.80
	APPREHENSIVE	2.12	2.17	3.12
	EXPERIMENTING	5.62	5.22	5.28
	SELF SUFFICIENT	2.27	2.26	1.64
	CONTROLLED	4.73	5.25	4.40
	TENSE	1.65	1.91	2.68
PSI	ALIENATION	6.34	7.20	7.16
	SOCIAL NONCONFORMITY	15.88	14.77	17.08
	DISCOMFORT	4.65	6.66	6.52
	EXPRESSION	19.15	17.17	19.80
	DEFENSIVENESS	10.35	10.57	9.44

APPENDIX E(v)

Descriptive Analysis of Mean (Raw) Scores of 'Disturbed' Type on 28 Personality Scales with Scores of Similar Type from First Random Sub-set

	PERSONALITY SCALE	'Disturbed Cluster' (N = 53)	Cluster from 1st Sub-set (N = 33)
HDHQ	GUILT	5.57	5.45
	SELF CRITICISM	7.49	7.73
	PROJECTED HOSTILITY	4.81	4.82
	ACTED OUT HOSTILITY	7.64	7.12
	CRITICISM OF OTHERS	8.75	8.70
	GENERAL HOSTILITY	34.23	33.76
	DIRECTION OF HOSTILITY	-0.70	-0.27
16PF	OUTGOING	4.58	4.03
	INTELLIGENT	6.87	6.70
	EMOTIONALLY STABLE	2.89	3.06
	ASSERTIVE	3.89	3.27
	HAPPY-GO-LUCKY	5.13	4.06
	CONSCIENTIOUS	4.15	4.21
	VENTURESOME	2.00	1.72
	TENDERMINDED	2.42	2.64
	SUSPICIOUS	3.77	3.30
	IMAGINATIVE	3.26	3.33
	SHREWD	3.92	4.06
	APPREHENSIVE	5.87	5.73
	EXPERIMENTING	4.30	4.42
	SELF SUFFICIENT	4.15	4.91
	CONTROLLED	3.87	4.09
	TENSE	5.98	6.42
PSI	ALIENATION	12.13	12.33
	SOCIAL NONCONFORMITY	16.21	14.91
	DISCOMFORT	16.25	16.94
	EXPRESSION	12.02	11.58
	DEFENSIVENESS	8.98	8.97

APPENDIX E(vi)

Descriptive Analysis of Mean (Raw) Scores of Type 3 from Second Random Sub-set and Types 2 and 5 from first Random Sub-set

	PERSONALITY SCALE	Type 3 from 2nd Random Sub-set (N = 21)	Type 2 from 1st Random Sub-set (N = 42)	Type 5 from 1st Random Sub-set (N = 35)
HDHQ	GUILT	1.52	2.60	2.11
	SELF CRITICISM	2.62	4.10	3.00
	PROJECTED HOSTILITY	1.43	2.62	2.71
	ACTED OUT HOSTILITY	5.19	5.48	6.57
	CRITICISM OF OTHERS	6.10	6.47	7.74
	GENERAL HOSTILITY	16.85	21.26	22.11
	DIRECTION OF HOSTILITY	-5.95	-3.79	-9.02
16PF	OUTGOING	3.81	3.83	5.00
	INTELLIGENT	7.33	6.55	6.73
	EMOTIONALLY STABLE	4.71	4.33	5.00
	ASSERTIVE	3.90	3.24	4.11
	HAPPY-GO-LUCKY	6.05	5.31	7.00
	CONSCIENTIOUS	3.76	4.36	3.20
	VENTURESOME	3.52	3.14	5.74
	TENDERMINDED	1.85	2.26	2.29
	SUSPICIOUS	3.24	3.07	4.06
	IMAGINATIVE	3.71	3.62	3.74
	SHREWD	4.43	3.90	3.57
	APPREHENSIVE	3.57	3.92	2.17
	EXPERIMENTING	4.71	4.83	5.22
	SELF SUFFICIENT	2.76	3.83	2.26
	CONTROLLED	4.57	4.24	5.25
	TENSE	1.90	2.81	1.91
PSI	ALIENATION	5.38	8.00	7.20
	SOCIAL NONCONFORMITY	15.00	13.98	14.77
	DISCOMFORT	7.10	11.29	6.66
	EXPRESSION	14.76	11.76	17.17
	DEFENSIVENESS	11.48	10.48	10.57

APPENDIX F(i)

FIVE PERSONALITY TYPES OF YOUNG OFFENDER COMPARED ON OFFENCE CATEGORIES AND NUMBER OF OFFENCES FOR WHICH CURRENT SENTENCE WAS BEING SERVED

OFFENCE CATEGORY	PERCENTAGE OF SUBJECTS IN EACH CLUSTER HAVING COMMITTED OFFENCE					χ^2 (df = 4)	p
	1	2	3	4	5		
Dishonest agst the person	33	23	29	33	35	2.20	0.69
Disorderly agst the person	17	30	17	22	27	4.77	0.31
Dishonest agst property	44	48	60	54	58	4.49	0.34
Disorderly agst property	11	9	10	14	12	0.99	0.91
Offences involving motor vehicles	32	36	27	27	23	2.27	0.68
Offences committed in more than one category	43	50	52	52	46	2.27	0.69

χ^2 computed on frequencies of cluster members present and absent on offence category.

APPENDIX F(ii)

FIVE PERSONALITY TYPES OF YOUNG OFFENDER COMPARED ON PREVIOUS SENTENCES SERVED

SENTENCE	PERCENTAGE OF SUBJECTS IN EACH CLUSTER HAVING SERVED SENTENCE					χ^2 (df = 4)	p
	1	2	3	4	5		
Absolute/Conditional discharge	45	44	35	41	42	1.47	0.83
Fine	80	78	75	74	81	1.37	0.85
Attendance Centre	29	16	31	43	31	10.27	0.04 *
Supervision Order	42	35	45	35	31	2.95	0.56
Care Order	23	18	37	29	27	6.09	0.19
Probation	28	18	33	26	35	4.07	0.40
Community Service Order	12	22	14	13	8	4.02	0.40
Detention Centre	42	40	43	57	50	6.10	0.19
Borstal/YP	20	20	25	36	42	11.37	0.02 *

χ^2 computed on frequencies of cluster members either having or not having served each sentence previously.

* $p < 0.05$

APPENDIX F(iii)

(i) FIVE PERSONALITY TYPES OF YOUNG OFFENDERS COMPARED ON EMPLOYMENT STATUS AT TIME OF ARREST

EMPLOYMENT STATUS	CLUSTER				
	1	2	3	4	5
	(N = 115)	(N = 56)	(N = 52)	(N = 95)	(N = 26)
NO. EMPLOYED	23	9	15	18	8
NO. UNEMPLOYED	92	47	37	77	18
EMPLOYMENT RATE	20%	16%	29%	19%	31%

$\chi^2 = 4.50$, df = 4, p = 0.34

(ii) FIVE PERSONALITY TYPES OF YOUNG OFFENDERS COMPARED ON PLACE OF RESIDENCE AT TIME OF ARREST

PLACE OF RESIDENCE	CLUSTER (figures in parentheses represent % ages)				
	1	2	3	4	5
	(N = 115)	(N = 56)	(N = 52)	(N = 95)	(N = 26)
MARRIED/AT HOME WITH BOTH NATURAL PARENTS	51 (44.3)	28 (50.0)	24 (46.1)	37 (38.9)	16 (61.5)
AT HOME WITH ONE NATURAL PARENT	26 (22.6)	17 (30.4)	12 (23.1)	21 (22.1)	6 (23.1)
ELSEWHERE	38 (33.0)	11 (19.6)	16 (30.8)	37 (38.9)	4 (15.4)

$\chi^2 = 10.37$, df = 8, p = 0.24

APPENDIX G(i)

RECIDIVISTS AND NON-RECIDIVISTS ACROSS THREE SENTENCES - MEAN SCORES OF GROUPS AND THE RESULTS OF T-TESTS BETWEEN GROUPS ON 28 PERSONALITY SCALES

	PERSONALITY SCALE	MEAN SCORE OF RECIDIVISTS (N = 272)	MEAN SCORE OF NON-RECIDIVISTS (N = 61)	t	
HDHQ	GUILT	3.66	3.93	-1.01	
	SELF-CRITICISM	4.82	5.30	1.47	
	PROJECTED HOSTILITY	3.49	3.64	0.53	
	ACTED OUT HOSTILITY	7.28	6.52	-2.22	*
	CRITICISM OF OTHERS	8.07	7.88	-0.66	
	GENERAL HOSTILITY	27.32	26.72	-0.60	
	DIRECTION OF HOSTILITY	-5.44	-4.46	1.08	
16PF	OUTGOING	4.31	4.38	0.29	
	INTELLIGENT	6.68	6.64	-0.21	
	EMOTIONALLY STABLE	3.94	4.30	1.38	
	ASSERTIVE	4.15	3.95	-0.75	
	HAPPY-GO-LUCKY	5.81	5.66	-0.59	
	CONSCIENTIOUS	3.62	3.82	0.85	
	VENTURESOME	3.60	3.52	-0.26	
	TENDERMINDED	2.47	2.33	-0.58	
	SUSPICIOUS	4.06	4.10	0.15	
	IMAGINATIVE	3.63	3.33	-1.57	
	SHREWD	3.85	4.21	1.90	
	APPREHENSIVE	4.32	4.21	-0.43	
	EXPERIMENTING	4.76	4.72	-0.20	
	SELF-SUFFICIENT	3.58	3.48	-0.36	
	CONTROLLED	4.10	4.39	1.35	
	TENSE	3.60	3.70	0.35	
PSI	ALIENATION	9.04	9.03	-0.01	
	SOCIAL NONCONFORMITY	15.67	14.25	-3.45	**
	DISCOMFORT	11.35	11.69	0.47	
	EXPRESSION	14.04	13.43	-1.04	
	DEFENSIVENESS	9.66	10.18	1.37	

* $p < 0.05$ ** $p < 0.01$ (two-tailed tests)

APPENDIX G(ii)

RECIDIVISTS AND NON-RECIDIVISTS IN DETENTION CENTRE SAMPLE - MEAN SCORES OF GROUPS AND THE RESULTS OF T-TESTS BETWEEN GROUPS ON 28 PERSONALITY SCALES

	PERSONALITY SCALE	MEAN SCORE OF RECIDIVISTS (N = 82)	MEAN SCORE OF NON-RECIDIVISTS (N = 36)	t
HDHQ	GUILT	3.80	3.22	1.59
	SELF-CRITICISM	5.39	5.06	0.77
	PROJECTED HOSTILITY	3.61	3.50	0.26
	ACTED OUT HOSTILITY	7.17	6.52	1.31
	CRITICISM OF OTHERS	7.59	7.72	-0.29
	GENERAL HOSTILITY	27.54	26.06	1.03
	DIRECTION OF HOSTILITY	-3.84	-5.19	1.09
16PF	OUTGOING	3.84	4.25	-1.21
	INTELLIGENT	6.48	6.61	-0.45
	EMOTIONALLY STABLE	4.06	3.97	0.26
	ASSERTIVE	3.67	3.81	-0.37
	HAPPY-GO-LUCKY	5.70	5.67	0.08
	CONSCIENTIOUS	3.91	3.69	0.71
	VENTURESOME	3.50	3.47	0.07
	TENDERMINDED	2.21	2.03	0.53
	SUSPICIOUS	3.63	4.33	-1.97
	IMAGINATIVE	3.51	3.17	1.32
	SHREWD	3.68	4.14	-1.53
	APPREHENSIVE	4.40	4.33	0.20
	EXPERIMENTING	4.57	4.81	-0.80
	SELF-SUFFICIENT	3.48	3.31	0.45
	CONTROLLED	4.35	4.25	0.37
	TENSE	3.51	3.83	-0.79
PSI	ALIENATION	9.37	8.47	1.40
	SOCIAL NONCONFORMITY	14.79	13.86	1.70 *
	DISCOMFORT	12.98	11.83	1.12
	EXPRESSION	13.27	13.14	0.16
	DEFENSIVENESS	10.26	10.61	-0.66

two-tailed tests except HDHQ acted-out hostility and PSI social nonconformity

* $p < 0.05$ (one-tailed test)

APPENDIX H

The Scale Loading and Direction of Scoring (indicated *)
of Items from the HDHQ, PSI and 16PF (Form E)

HOSTILITY AND DIRECTION OF HOSTILITY QUESTIONNAIRE (HDHQ)

Self-Criticism (SC):

3. I usually expect to succeed in things I do. True False *

8. My hardest battles are with myself. True * False

14. I have often lost out on things because I couldn't make up my mind soon enough. True * False

23. I seem to be about as capable and clever as most others around me. True False *

26. I am entirely self-confident. True False *

27. Often I can't understand why I have been so cross and grouchy. True * False

28. I shrink from facing a crisis or difficulty. True * False

30. I have sometimes felt that difficulties were piling up so high that I could not overcome them. True * False

34. I have several times given up doing a thing because I thought too little of my ability. True * False

40. I am easily downed in an argument. True * False

51. I am certainly lacking in self-confidence. True * False

Guilt (G):

5. I wish I could get over worrying about things I have said that may have injured other people's feelings. True * False

12. I believe my sins are unpardonable. True * False

16. I believe I am a condemned person. True * False

21. I have not lived the right kind of life. True * False

33. Much of the time I feel I have done something wrong or evil. True * False

43. At times I think I am no good at all. True * False

48. I certainly feel useless at times. True * False

Acted-Out Hostility (AH):

7. I don't blame anyone for trying to grab everything he can get in this world. True * False

15. I can easily make other people afraid of me, and sometimes do for the fun of it. True * False

17. In school I was sometimes sent to the principal for misbehaving. True * False

20. Sometimes I enjoy hurting persons I love. True * False

22. Sometimes I feel as if I must injure either myself or someone else. True * False

24. I sometimes tease animals. True * False

25. I get angry sometimes. True * False

39. At times I have a strong urge to do something harmful or shocking. True * False

40. I am easily downed in an argument. True False *

42. I easily become impatient with people. True * False

45. I get angry and then get over it soon. True * False

46. At times I feel like smashing things. True * False

49. At times I feel like picking a fist fight with someone. True * False

Criticism of Others (CO):

1. Most people make friends because friends are likely to be useful to them. True * False

2. I do not blame a person for taking advantage of someone who lays himself open to it. True * False

6. I think nearly anyone would tell a lie to keep out of trouble. True * False

10. Some people are so bossy that I feel like doing the opposite of what they request, even though I know they are right. True * False

11. Some of my family have habits that bother and annoy me very much. True * False

13. I have very few quarrels with members of my family. True False *

18. I have at times stood in the way of people who were trying to do something, not because it amounted to much but because of the principle of the thing. True * False

19. Most people are honest chiefly through fear of being caught. True * False

29. I think most people would lie to get ahead. True * False

32. I have often found people jealous of my good ideas, just because they had not thought of them first. True * False

36. When someone does me a wrong I feel I should pay him back if I can, just for the principle of the thing. True * False

41. It is safer to trust nobody. True * False

Projected Hostility (PH):

4. I have no enemies who really wish to harm me. True False *

9. I know who, apart from myself, is responsible for most of my troubles. True * False

31. If people had not had it in for me I would have been much more successful. True * False

35. Someone has it in for me. True * False

37. I am sure I get a raw deal from life. True * False

38. I believe I am being followed. True * False

44. I commonly wonder what hidden reason another person may have for doing something nice for me. True * False

47. I believe I am being plotted against. True * False

50. Someone has been trying to rob me. True * False

General Hostility = SC + G + AH + CO + PH

Direction of Hostility = (2SC + G) - (AH + CO + PH)

PSYCHOLOGICAL SCREENING INVENTORY (PSI)

Alienation (AL):

9.	I do not worry about going insane.	True	False *
10.	Things are always frightening me.	True *	False
31.	All people tell "white lies".	True	False *
38.	I do not curse.	True *	False
39.	Most people are honest with themselves.	True *	False
43.	Strange voices have spoken to me.	True *	False
47.	Warm relationships are difficult for me.	True *	False
51.	I have sometimes been tempted to hit people.	True	False *
53.	I sometimes get all steamed up.	True	False *
58.	Odd things have happened to me in my lifetime.	True *	False
59.	I do not like to sit and daydream.	True *	False
63.	People should look after themselves first.	True *	False
80.	I never act without thinking.	True *	False
81.	The world has always seemed pretty real.	True	False *
83.	People tend to watch me.	True *	False
86.	I have never had a strange mental attack.	True	False *
90.	I sometimes feel I am in a world alone.	True *	False
95.	When I get nervous my hands tremble.	True *	False
96.	People stop talking when I approach.	True *	False
98.	Life treats me badly.	True *	False
100.	My failures are largely due to myself.	True	False *
103.	Sometimes I hear noises inside my head.	True *	False
110.	People think I am more immature than I am.	True *	False
124.	Some people simply have too much energy.	True *	False
125.	I feel that people keep secrets from me.	True *	False

Social Nonconformity (SN):

5.	Shooting is a good sport.	True *	False
8.	I have never broken a major law.	True	False *
13.	People usually understand me.	True	False *
21.	I guess I know some pretty undesirable types.	True *	False
24.	I have sometimes drunk too much.	True *	False
27.	I break more laws than many people.	True *	False
28.	My friends were always welcome at home.	True	False *
36.	High speeds thrill me.	True *	False
46.	I'm afraid I broke a few rules at school.	True *	False
50.	My childhood home was happy.	True	False *
52.	I was always well behaved in school.	True	False *
57.	My school teachers had some problems with me.	True *	False
65.	I have been tempted to leave home.	True *	False
71.	Some people really wish me harm.	True *	False
72.	My parents like (or liked) my friends.	True	False *
76.	Drug addiction is very undesirable.	True	False *
85.	I like to obey the law.	True	False *
91.	My troubles are not all my fault.	True *	False
97.	Being a racing driver would be fun.	True *	False
99.	I have rarely been punished.	True	False *
102.	I stay away from trouble.	True	False *
105.	Many people do not know how sensitive I am.	True	False *
106.	If I don't like somebody, I say so.	True *	False
120.	Sometimes the police use unfair tricks.	True *	False
122.	At school I was never easy to manage.	True *	False

Discomfort (Di):

2.	I am usually happy.	True	False *

7.	I guess I am not very efficient.	True *	False
12.	I forget things more quickly nowadays.	True *	False
15.	I think there is something wrong with my memory.	True *	False
17.	I don't get sick very often.	True	False *
20.	When I sleep I toss and turn.	True *	False
23.	I often find it hard to concentrate.	True *	False
32.	I am pretty healthy for my age.	True	False *
37.	I am tempted to sleep too much.	True *	False
41.	My health is no problem for me.	True	False *
42.	Sometimes I am no good for anything at all.	True *	False
49.	I frequently feel nauseated.	True *	False
54.	My appetite is very healthy.	True	False *
56.	I am often tired during the day.	True *	False
61.	I am easily distracted from a task.	True *	False
62.	I rarely wake up tired.	True	False *
70.	Much of my life is uninteresting.	True *	False
73.	I have little confidence in myself.	True *	False
74.	I seldom feel frightened.	True	False *
77.	I feel isolated from other people.	True *	False
79.	I have a lot of energy.	True	False *
104.	I rarely stumble or trip when I walk.	True	False *
109.	I rarely feel anxious in my stomach.	True	False *
111.	At times I feel worn out for no special reason.	True *	False
115.	I rarely or never get headaches.	True	False *
118.	People often embarrass me.	True *	False
121.	Occasionally I feel dizzy or light-headed.	True *	False
127.	I can usually judge what effect I have on others.	True	False *
128.	My strength often seems to drain away from me.	True *	False
129.	Sometimes I wish I could control myself better.	True *	False

Expression (Ex):

3.	Being a TV announcer would be fun.	True *	False
6.	At times I lose all my drive.	True	False *
11.	Sometimes I don't quite know what to say.	True	False *
14.	I think carefully about all my actions.	True	False *
16.	I am active in clubs.	True *	False
19.	I am rarely at a loss for words.	True *	False
26.	I would like to be more outgoing.	True	False *
29.	Adults should not shout and yell so much.	True	False *
40.	I do not like to perform for others.	True	False *
44.	I would not like to be an actor.	True	False *
48.	At times I am a little shy.	True	False *
60.	Few people win arguments with me.	True *	False
64.	Sometimes I am tempted to break something.	True *	False
66.	I have no trouble controlling my urges.	True	False *
67.	I am rather a loud-mouth at times.	True *	False
69.	I am a fairly conservative person.	True	False *
78.	It is very hard to embarrass me.	True *	False
87.	I always do my work thoroughly.	True	False *
89.	I would make a good leader.	True *	False
92.	I enjoy talking in front of groups.	True *	False
93.	I find it hard to start a conversation.	True	False *
94.	I don't like to rush about.	True	False *
101.	I would like to be really important.	True *	False
108.	I think carefully about most things I do.	True	False *
112.	We should obey every law.	True	False *
117.	I am usually the one to start a conversation.	True *	False
119.	It is very easy for me to make friends.	True *	False

123. I am extremely talkative. True * False

126. I like to let others start a conversation. True False *

130. I have a soft voice. True False *

Defensiveness (De):

4. I am happy just being alone. True False *

18. It is fun to bet. True False *

22. I do not like to gamble. True * False

25. I am sensitive to the needs of others. True * False

30. As a child I occasionally stole things. True False *

33. My thoughts are sometimes unusual. True False *

34. I enjoy the theatre. True * False

35. I take all my responsibilities seriously. True * False

45. I have sometimes sat about when I should have been working. True False *

55. I am extremely persistent. True * False

59. I do not like to sit and daydream. True * False

68. Most people are looking for sympathy. True False *

75. People think I am pretty calm. True * False

82. I have avoided people I did not wish to speak to. True False *

84. The world is full of odd things. True False *

88. People generally like to help others. True * False

107. My life is definitely worthwhile. True * False

113. Some of my relatives have done strange things. True False *

114. I am painstaking and thorough. True * False

116. My parents are (or were) too conservative. True False *

SIXTEEN PERSONALITY FACTOR QUESTIONNAIRE (FORM E)

Factor A - Outgoing

1.	Would you rather help children play games *	or	help fix watches
17.	In an office would you rather see people *	or	draw house plans
33.	Does it bother you to be the centre of interest in a group of people	or	do you like it *
49.	Would you rather take care of trees in a forest	or	teach children in a school *
65.	Would you rather have a house alone in the deep woods	or	where lots of people live *
81.	Would you rather teach children about their own feelings *	or	build a new building
97.	Do people say you talk too much *	or	are you quiet
113.	In your spare time would you rather join a hiking club	or	a club that helps people *

Factor B - More Intelligent

2.	Is $\frac{1}{2}$ of 7 closer to 3 *	or	closer to 5
18.	After 3, 5, 7, 9 does 11 come next *	or	does 10 come next
34.	If John is taller than Bill and Mike is shorter than Bill is Bill the tallest	or	is John the tallest *
50.	Does little mean the same as thin	or	the same as small *
66.	After 2, 4, 6, 8 does 10 come next *	or	does 9 come next
82.	After N, P, R, T, V does X come next *	or	does W come next
98.	After 3, 6, 12, 24 does 36 come next	or	does 48 come next *
114.	Is red more like blue	or	more like orange *

Factor C - Emotionally Stable

3.	Do you always feel like doing what you planned *	or	do you ever plan things and then not feel like doing them
19.	When people don't listen to you, do you get impatient	or	does it not bother you *
35.	Do people misunderstand you when you mean well	or	does that never happen *
51.	Do you often get angry with people too quickly	or	are you slow to get angry *
67.	Do little things get on your nerves a lot	or	are little things not important *
83.	Do your feelings usually come from what is going on around you *	or	do you get strong feelings that come without any real cause
99.	When you get upset do you cool down again very quickly *	or	does it take a while to calm down
115.	Do you always have lots of energy when you need it *	or	do you often feel too tired

Factor E - Assertive

4.	Is it fun to tell an obvious lie with a straight face *	or	could you never do that
20.	Most of the time would you rather "play it safe"	or	take a chance *
36.	Do you sometimes speak angrily to your parents *	or	is it wrong to do that
52.	Would you rather do without something than put a waiter to a lot of extra trouble	or	do you feel that extra trouble is part of his job *
68.	Do you sometimes say things that hurt people's feelings *	or	do you try very hard never to do that

84.	If you have to tell someone a lie do you look away	or	can you look at him *
100.	In a strange city would you stay away from the parts of the town that people say are dangerous	or	would you walk any place you wanted *
116.	Are you critical of other people's work *	or	are you not like that

Factor F - Happy-Go-Lucky

5.	Do you like to tell jokes *	or	do you not like to do that
21.	Would you rather spend an evening quietly at home	or	at a lively party *
37.	Do you like things to be quiet	or	do you always like exciting things *
53.	Do you like to be serious most of the time	or	are you happy and laughing most of the time *
69.	Do you like to make people laugh with funny stories *	or	do you not like to do that
85.	Do you really enjoy all large groups of people such as parties or dances *	or	would you rather be alone much of the time
101.	Do people say you are a serious person	or	that you are happy-go-lucky *
117.	Do people say you are lively *	or	do they say that you are quiet

Factor G - Conscientious

6.	Are you a strict person who does everything as well as possible *	or	do you do some things just well enough to get by
22.	Do you avoid saying things that bother people *	or	do you sometimes like to
38.	Do you think people need to observe the rules more strictly *	or	that they need to have greater freedom

54.	Do you just ignore messy streets	or	do they bother you *
70.	Is it very important to follow all the rules *	or	are there some rules that you should not follow
86.	Do you usually do what you want to do	or	what will be best for other people *
102.	Do you feel that some jobs do not need doing so well as others	or	that any job should be done as well as you can *
118.	Do you think that most people take life too seriously	or	not seriously enough *

Factor H - Venturesome

7.	Do you show up well in social things *	or	would you rather stay quietly out of the way
23.	Are you the one who gets the party going *	or	do you wait for someone else to do it
39.	Do you feel shy in front of people when you need to talk	or	can you usually stand right up and talk *
55.	Would you rather have a job where you work by yourself	or	a job where you had to go to one meeting after another *
71.	Is it easy to go up and meet an important person *	or	would you rather not
87.	When you join a new group does it take some time to fit in	or	do you fit in right away *
103.	Do you find it hard to speak to a large group of people	or	do you like it *
119.	Do you speak your mind no matter how many people are around *	or	do you hold back when a lot of people are around

Factor I - Tenderminded

8.	Would you rather be an artist *	or	a mechanic

24.	Are you always glad to fix mechanical things	or	would you rather sit around and talk *
40.	Would you rather be a good musician *	or	a good soldier
56.	Would you rather be a school-teacher *	or	a great hunter
72.	In a play would you rather be a jet pilot	or	a famous writer *
88.	Would you rather have a job writing children's books *	or	fixing electrical machines
104.	Would you rather read about battles and war	or	about people's feelings *
120.	Would you rather fix machines that don't work	or	think about what life means *

Factor L - Suspicious

9.	Do you make smart remarks that hurt people's feelings when they deserve it *	or	do you never do that
25.	Do you think most people tell the truth even if it might hurt them	or	do they tell the truth only when it won't hurt them *
41.	When people are unreasonable do you keep quiet	or	do you feel a strong dislike for them *
57.	When a person is not doing the right thing do you show him up even if it takes some trouble *	or	do you just let it go
73.	When someone is unreasonable and narrow-minded, are you still polite	or	do you show him up *
89.	Do you think that most people are honest only because they are afraid of getting caught *	or	that most people would be honest anyway
105.	If someone gets mad and yells at you, do you stay quiet and calm	or	do you yell back *

121. If a neighbour cheats you in some small thing, would you rather show him up * or just let it go

Factor M - Imaginative

10. If you were good at both would you rather bowl or play chess *

26. When there is hard work to do do you try to take rest breaks more than most people or less than most people *

42. Would you rather be a book-keeper or an artist *

58. Would you rather hire workers to run machines * or fix the machines when they break down

74. Can people change your mind by appeals to your feelings or do your feelings not have anything much to do with what you think *

90. Can you take either side in an argument just to be sure that all sides are thought about * or would you not want to take the side you didn't believe in

106. Do you like to tackle problems that other people have made a mess of * or would you rather start from the beginning

122. Would you like to be a writer about music and plays * or would you not like that kind of work

Factor N - Shrewd

11. After a busy day do you fall asleep easily or do ideas keep running through your mind *

27. Can you stand things to be all mixed up or does it bother you *

43. Does it bother you if people think you are odd or strange or does it not bother you at all *

59. Should we live more by the rules of the group * or by our own ideas

75.	When someone corrects you or blames you for something, do you try to show you are right *	or	do you accept the blame
91.	Are you always careful to believe only half of what you read	or	can you depend upon the things you read *
107.	Do you think we should be very slow to lose the wisdom of the past *	or	should we move faster to try new things
123.	Would you rather ride in a car with someone else driving *	or	do you like to drive a car

Factor O - Apprehensive

12.	Do you have times when you feel sorry for yourself *	or	does that never happen to you
28.	Do you ever feel there is danger without any good reason *	or	do you never feel that way
44.	Even in the middle of a group of people do you sometimes feel lonely and worthless *	or	do you almost always feel good
60.	Are you afraid of something for no particular reason *	or	do you never feel that way
76.	Would you rather be the one in charge of a group of people	or	just be one of the group *
92.	When someone fusses at you in public does it not bother you too much	or	db you get very embarrassed and upset *
108.	Do your friends think you have many new ideas	or	that you are good at following the ideas of others *
124.	When the teacher calls your name are you glad to show what you can do	or	are you afraid you have done something wrong *

Factor Q1 - Experimenting

13.	If you had a lot of money to give away would you give it to science research *	or	would you give it to a church
29.	Would it be better if everyone went to church regularly	or	is that not too important *
45.	Do we need more attention to old well-tried ideas about social matters	or	more calm thinking of a new kind *
61.	Do you think that new ideas make old-time preachers look silly *	or	are the new ideas silly
77.	Do you like thinking games better *	or	do you like sports better
93.	Do you think we need stricter laws about Sunday	or	more freedom to do what we like *
109.	If you had more money than you need, would you keep it in case you need it later *	or	would you give some to a church
125.	Do you think our country should keep its army strong	or	that we should depend upon good will among all countries *

Factor Q2 - Self-Sufficient

14.	When you are on a train or bus would you rather look out of the window *	or	talk to people
30.	Do you like to take an active part in social things and committee work	or	are you most interested in things that you can do by yourself *
46.	Are you always glad to get together with a group of people	or	would you rather do things your own way when you want to *
62.	Would you rather spend a holiday in a quiet place *	or	in a resort

78.	Can you spend a whole morning without wanting to speak to anybody *	or	would you never feel like that
94.	Would you rather paint pictures *	or	run a social club
110.	Would you rather work with a committee	or	on your own *
126.	Do you like to be active in social things	or	would you rather be alone *

Factor Q3 - Controlled

15.	If a man wears a beard and dresses sloppily would you stay away from him *	or	might he be nice to know
31.	Do your friends sometimes think your mind is not on what you are doing	or	do they never think that *
47.	Do you often jump into things too fast	or	do you take your time *
63.	Is it all right to leave beds unmade for a day or two	or	do they need to be made every day *
79.	Are you a practical person *	or	more of a dreamer
95.	Do you like to make plans so that you will not waste time between jobs *	or	do you take things as they come
111.	Are you a person who gets things done *	or	a dreamer
127.	If someone gets mad at you would you get upset too	or	would you try to calm him down *

Factor Q4 - Tense

16.	When someone is bad tempered towards you, do you get over it quickly	or	does it bother you for some time *
32.	Are you almost never jealous	or	are you often jealous *

48.	Do you get very sad about little things *	or	is that never a problem for you
64.	Do you have dreams that disturb your sleep *	or	do you not dream very much
80.	Do you feel comfortable and calm	or	are you often upset *
96.	Do you have many problems *	or	are you getting along well
112.	When you are going to catch a train or a bus do you get tense and nervous *	or	do you feel you have enough time
128.	Do you usually feel good no matter how many troubles there are	or	do you get to feeling low *

BIBLIOGRAPHY

Adams, S. (1961) Interaction between individual interview therapy and treatment amenability in older youth authority wards. In Inquiries Concerning Kinds of Treatment for Kinds of Offenders, California Board of Corrections Monograph No. 2.

Adorno, T.W., Frenkel-Brunswik, E., Levinson, D.J. and Sanford, R.N. (1950) The Authoritarian Personality. New York : Harper.

Allport, G.W. (1937) Personality : A Psychological Interpretation New York : Holt.

Allsopp, J.F. and Feldman, M.P. (1975) Extraversion, neuroticism, psychoticism and anti-social behaviour in schoolgirls. Social Behaviour and Personality, 2, 184-190.

Babst, D.V. and Mannering, J.W. (1965) Probation vs. imprisonment for similar types of offenders - a comparison by subsequent violations. Journal of Research in Crime and Delinquency, 2, 60-71.

Banks, C. (1964) Reconviction of young offenders. In Keaton, K.W. and Schwarzenberger, E.N. (Eds.), Current Legal Problems, 17, 61-65.

Banks, C. (1965) Boys in detention centres. In Banks, C. and Broadhurst, P.L. (Eds.), Stephanos : Studies in Psychology. London : University of London Press.

Barbash, J.T. (1962) A study of psychological therapy on post-release adjustment. American Journal of Correction, 25, 26-34.

Bartholomew, A.A. (1959) Extraversion-introversion and neuroticism in first offenders and recidivists. British Journal of Delinquency, 10, 120-129.

Bartko, J.J., Strauss, J.S. and Carpenter, W.T. (1971) An evaluation of taxonomic techniques for psychiatric data. Classification Society Bulletin, 2, 2-28.

Bayne, C.K., Beauchamp, J.J., Begovich, C.L. and Kane, V.C. (1980) Monte Carlo comparisons of selected clustering procedures. Pattern Recognition, 12, 51-62.

Beale, E.M.L. (1969) Cluster Analysis London : Scientific Control Systems Ltd.

Beker, J. and Heyman, D.S. (1972) A critical appraisal of the California Treatment Typology of Adolescent Offenders. Criminology, 10, 3-59.

Belson, W. (1975) Juvenile Theft : The Causal Factors New York : Harper and Row.

Beverley, R.F. (1965) The Beverley-Grant Opinion Schedule : an attempt at the objective measurement of interpersonal maturity. Research report No. 48, California Dept. of the Youth Authority, Sacramento, California.

Black, D.J. and Reiss, A.J. (1970) Police control of juveniles American Sociological Review, 35, 63-78.

Blackburn, R. (1968) Personality in relation to extreme aggression in psychiatric offenders. British Journal of Psychiatry, 14, 821-828.

Blackburn, R. (1970) Personality types among abnormal homicides. Special Hospitals Research Report No. 1.

Blackburn, R. (1971) Personality types among abnormal homicides. British Journal of Criminology, 11, 14-31.

Blackburn, R. (1975) An empirical classification of the psychopathic personality. British Journal of Psychiatry, 127, 456-460.

Blackith, R.E., and Reyment, R.A. (1971) Multivariate Morphometrics London : Academic Press.

Blackler, C. (1968) Primary recidivism in adult men : differences between men on first and second prison sentence. British Journal of Criminology, 8, 130-169.

Blashfield, R.K. (1976) Mixture model test of cluster analysis : accuracy of four agglomerative hierarchical methods. Psychological Bulletin, 83, 377-388.

Blashfield, R.K. and Morey, L.C. (1980) A comparison of four clustering methods using MMPI Monte Carlo data. Applied Psychological Measurement, 41, 57-64.

Bohn, M.J. (1978) Classification of offenders in an institution for young adults. Paper presented at 19th Annual Conference (July) of Applied Psychology, Munich.

Bolton, N., Smith, F.V., Heskin, K.J. and Bannister, P.A. (1976) Psychological correlates of long-term imprisonment. British Journal of Criminology, 16, 38-47.

Bondesen, U. (1969) Argot knowledge as an indicator of criminal socialization. Scandinavian Studies in Criminology, 2, 73-107.

Borkovec, T.D. (1970) Autonomic reactivity to sensory stimulation in psychopathic, neurotic and normal juvenile delinquents. Journal of Consulting and Clinical Psychology, 35, 217-222.

Bottoms, A.E. and McClintock, F.H. (1973) Criminals Coming of Age London : Heinemann.

Bouchard, T.J. (1972) Sixteen PF Questionnaire. In Buros, O.K. (Ed.), Seventh Mental Measurements Yearbook New Jersey : Gryphon.

Box, S. (1971) Deviance, Reality and Society London : Holt, Rinehart and Winston.

Brody, S.R. (1976) The Effectiveness of Sentencing London : HMSO.

Brown, R.C., D'Agistino, C.A. and Craddick, R.A. (1978) Prediction of parole outcome based on discriminant function. Corrective and Social Psychiatry and Journal of Behaviour Technology, Methods and Therapy, 24 (4), 135-143.

Burgess, P.K. (1972) Eysenck's theory of criminality : a new approach. British Journal of Criminology, 12, 74-82.

Buss, A. (1966) Psychopathology New York : Wiley.

Caine, T.M., Foulds, G.A. and Hope, K. (1967) Manual of the Hostility and Direction of Hostility Questionnaire London : University of London Press.

Calhoun, C.H. (1928) A follow-up study of 100 normal and 100 sub-normal delinquent boys. Journal of Juvenile Research, 12, 236-240.

Calinski, T. and Harabasz, J. (1974) A dendrite method for cluster analysis. Communications in Statistics, 3, 1-27.

Cameron, M.O. (1964) The Booster and the Snitch New York : Free Press.

Cattell, R.B. (1946) The Description and Measurement of Personality New York : World.

Cattell, R.B. (1947) Confirmation and clarification of primary personality traits. Psychometrika, 12, 197-220.

Cattell, R.B. (1950) The main personality factors in questionnaire, self-estimate material. Journal of Social Psychology, 31, 3-38.

Cattell, R.B. (1957) Personality and Motivation : Structure and Measurement New York : World.

Cattell, R.B. (1963) Concepts of personality growing from Multivariate experiment. In Wepman, J.M. and Heine, R.W. (Eds.) Concepts of Personality Chicago : Aldine.

Cattell, R.B. (1973) Personality and Mood by Questionnaire San Francisco : Jossey-Bass.

Cattell, R.B., Kombos, E. and Tatro, D.F. (1968) Significant differences of affective, paranoid and non-paranoid schizophrenic psychotics on primary source traits in the 16 PF. In Cattell, R.B. (Ed.) Progress in Clinical Psychology through Multivariate Experimental Designs Fort Worth : Society of Multivariate Experimental Psychology.

Cattell, R.B., Eber, H.W. and Tatsuoka, M.M. (1970) Handbook for the 16 PF Windsor, Berks : NFER Publishing Co. Ltd.

Christensen, L. and Le Unes, A. (1974) Discriminating criminal types and recidivism by means of the MMPI. Journal of Clinical Psychology, 30, 192-193.

Christie, N., Andenaes, J. and Skirbekk, S. (1965) A study of self-reported crime. Scandinavian Studies in Criminology, 1, 86-116.

Chockalingham, K. (1974) A study of recidivism in relation to extraversion. Indian Journal of Applied Psychology, 11, 12-13.

Clarke, R.V.G. (1977) Psychology and crime. Bulletin of the British Psychological Society, 30, 280-283.

Clarke, R.V.G. (1981) "Situational" crime prevention : theory and practice. British Journal of Criminology, 20, 136-147.

Cleckley, H. (1964) The Mask of Sanity. St Louis : Mosby.

Clemmer, D. (1940) The Prison Community. Boston : Christopher.

Clinard, M.N. and Quinney, R. (1973) Criminal Behaviour Systems : A Typology. New York : Holt, Rinehart and Winston.

Cloward, R.A. and Ohlin, L. (1960) Delinquency and Opportunity : A Theory of Delinquent Gangs. New York : Macmillan.

Cochran, W.G. (1954) Some methods for strengthening the common χ^2 tests. Biometrics, 10, 417-451.

Cochrane, R. (1974) Crime and personality : theory and evidence. Bulletin of the British Psychological Society, 12, 74-82.

Cockett, R. (1969) Amphetamine taking in a remand population. Unpublished paper. Directorate of Psychological Services. Home Office, Prison Department.

Cohen, S. and Taylor, L. (1972) Psychological Survival. London : Penguin.

Cormack, R.M. (1971) A review of classification. Journal of Research of the Statistical Society, Series A, 134, No. 3, 321-367.

Cornish, D.B. and Clarke, R.V.G. (1975) Residential Treatment and its Effects on Delinquency. Home Office Research Studies, No. 32. London : HMSO.

Coull, V.C., Geismar, L.L. and Waff, A. (1982) The role of the family in the resocialization of juvenile offenders. Journal of Comparative Family Studies, 13, 63-72.

Cowden, J.E., Schroeder, C.R. and Peterson, W.M. (1971) The CPI vs. the 16 PF at a reception centre for delinquent boys. Journal of Clinical Psychology, 27, 100-111.

Crawford, D. (1972) A study of HDHQ results of 100 long-term prisoners. Unpublished paper. Directorate of Psychological Services, C.P. Report, Series II, No. 20. Home Office, Prison Department.

Crawford, D. (1977) The HDHQ results of long-term prisoners : relationships with criminal and institutional behaviour. British Journal of Social and Clinical Psychology, 16, 391-394.

Cronbach, L.J. and Gleser, G.C. (1953) Assessing similarity between profiles. Psychological Bulletin, 50, 456-473.

Cronbach, L.J. (1970) Essentials of Psychological Testing New York : Harper and Row.

Cross, H.J. and Tracy, J.J. (1969) A study of delinquent boys in Connecticut : Application of the interpersonal maturity classification system and its relationship to guilt. Final report to the Connecticut Research Commission, Dept. of Sociology, University of Connecticut.

Csapo, K. (1975) PSI mean profiles of psychiatric inpatients. In Lanyon, R.I. (Ed.) Psychological Screening Inventory Research and Development Notes No. 6.

Curran, L. (1971) The MPI and delinquency. In a Borstal Typology Study. Unpublished series of papers. The Psychology Department, HM Prison, Wormwood Scrubs.

Davies, W. and Thornton, D. (1975) A validity study of the HDHQ. Unpublished paper. Directorate of Psychological Services Report, Series II, No. 28. Home Office, Prison Department.

Devlin, K. (1970) Sentencing Offenders in Magistrates' Courts. London : Sweet and Maxwell.

Donnan, H.H. and Harlan, G. (1968) Personality of counsellors and administrators. Personnel and Guidance Journal, 47, 228-232.

Dunham, R.E. (1954) Factors related to recidivism in adults. Journal of Social Psychology, 39, 77-91.

Eades, D.C. (1965) The inappropriateness of the correlation coefficient as a measure of taxonomic resemblance. Systematic Zoology, 14, 98-100.

Edelbrock, C. (1979) Mixture model tests of hierarchical clustering algorithms : the problem of classifying everybody. Multivariate Behaviour Research, 14, 367-384.

Edelbrock, C. and McLaughlin, B. (1980) Hierarchical cluster analysis using intraclass correlations : a mixture model study. Multivariate Behavioural Research, 15, 299-318.

Edinger, J.D. (1979) Cross-validation of the Megargee et al. MMPI typology for prisoners. Journal of Consulting and Clinical Psychology, 47,234-242.

Edwards, A.L. (1950) Experimental Design in Psychological Research. New York : Holt, Rheinhart and Winston.

Efran, M.G. (1974) The effect of physical appearance on the judgement of guilt, interpersonal attraction and severity of recommended punishment in a simulated jury task. Journal of Research in Personality, 8, 45-53.

Elmhorn, K. (1965) Study in self-reported delinquency among school children in Stockholm. Scandinavian Studies in Criminology, 1, 117-146.

Empey, L.T. and Erickson, M.L. (1972) The Provo Experiment. Boston : Heath.

Empey, L.T. and Lubeck, S. (1971) The Silverlake Experiment. Chicago : Aldine.

Ennis, P.H. (1972) Criminal victimization in the United States : a report of a national survey. Washington D.C. U.S. Govt. Printing Office.

Erickson, K.T. (1964) Notes on the sociology of deviance. In Beiber, H.J. (Ed.) The Other Side : Perspectives on Deviance. New York : Free Press.

Everitt, B. (1974) Cluster Analysis. London : Heinemann.

Everitt, B. (1980) Cluster Analysis (2nd edition). London : Heinemann Educational Books.

Eysenck, H.J. (1947) Dimensions of Personality. London : Kegan Paul.

Eysenck, H.J. (1952) The Scientific Study of Personality. London : Routledge and Kegan Paul.

Eysenck, H.J. (1953) The Structure of Human Personality. London : Methuen.

Eysenck, H.J. (1958) A short questionnaire for the measurement of two dimensions of personality. Journal of Applied Psychology, 42, 14-17.

Eysenck, H.J. (1959) Manual of the Maudsley Personality Inventory. London : University of London Press.

Eysenck, H.J. (1964) Crime and Personality. London : Routledge.

Eysenck, H.J. (1970) Crime and Personality (2nd edition). London : Granada.

Eysenck, H.J. (1972) Primaries or second-order factors : a critical consideration of Cattell's 16 PF battery. British Journal of Social and Clinical Psychology, 2, 265-269.

Eysenck, H.J. (1977) Crime and Personality (3rd edition). London : Granada.

Eysenck, S.B.G. and Eysenck, H.J. (1964) Manual of the Eysenck Personality Inventory. London : University of London Press.

Eysenck, S.B.G. and Eysenck, H.J. (1968) The measurement of psychoticism : a study of factor stability and reliability. British Journal of Social and Clinical Psychology, 7, 286-294.

Eysenck, S.B.G. and Eysenck, H.J. (1969) Scores on the three personality variables as a function of age, sex and social class. British Journal of Social and Clinical Psychology, 8, 69-76.

Eysenck, S.B.G. and Eysenck, H.J. (1970) Crime and personality : an empirical test of the three factor theory. British Journal of Criminology, 10, 225-239.

Eysenck, S.B.G. and Eysenck, H.J. (1976) Manual of the Eysenck Personality Questionnaire. Sevenoaks : Hodder and Stoughton.

Ferdinand, T.C. (1966) Typologies of Delinquency : A Critical Analysis. New York : Random House.

Field, E. (1967) A validation study of Hewitt and Jenkins hypothesis London : HMSO.

Field, J.G. (1959) Personalities of criminals. Unpublished paper. Presented at annual conference of the British Psychological Society, Cambridge.

Fitch, J.H. (1962) Two personality variables and their distribution in a criminal population : an empirical study. British Journal of Social and Clinical Psychology, 1, 161-167.

Fleiss, J.L. and Zubin, J. (1969) On the methods and theory of clustering. Multivariate Behavioural Research, 4, 235-250.

Florek, K., Lukaszewicz, J., Perkal, J., Steinhaus, H., and Zubrzycki, S. (1951) Sur la liason et la division des points d'un ensemble fini. Colloquium Mathematical, 2, 282-285.

Folkard, M.S. et al. (1974) Impact : Volume I. The Design of the Probation Experiment and an Interim Evaluation. Home Office Research Study, No. 24. London : HMSO.

Folkard, M.S., Smith, D.E., and Smith,D.D. (1976) Impact : Volume II. The Results of the Experiment. Home Office Research Study, No. 36. London : HMSO.

Fotheringham, J.B. (1957) Psychopathic personality : a review. Canadian Psychiatric Association Journal, 2, 52-74.

Foulds, G.A., Caine, T.M. and Creasy, M.A. (1960) Aspects of extra and intropunitive expression in mental illness. Journal of Mental Science, 106, 599-609.

Fowler, R.E. (1963) Multivariate analysis of the intensive treatment programme. California Department of Corrections.

Francis, R.D. (1970) Recidivism, types of crime and extraversion. Australian and New Zealand Journal of Criminology, 3, 92-94.

Frank, B. (1931) Mental level as a factor in crime. Journal of Juvenile Research, 15, 192-197.

Franks, C.M. (1955) A conditioning laboratory for the investigation of personality and cortical functioning. Nature, 175, 984-985.

Franks, C.M. (1956) Recidivism, psychopathy and personality. British Journal of Delinquency, 6, 192-201.

Freeman, R.A. and Mason, H.M. (1952) Construction of a key to determine recidivists from nonrecidivists using the MMPI. Journal of Clinical Psychology, 8, 207-208.

Garabedian, P. (1963) Social roles and the processes of socialization in the prison community. Social Problems, 11, 139-152.

Gayton, W.F., Ozmon, K.L. and Wilson, W.T. (1973) Effects of faking instructions on the Psychological Screening Inventory. Psychological Reports, 32, 516-518.

Gendreau, P., Madden, P.G. and Leipciger, M. (1979) Norms and recidivism for first incarcerates : implications for programming. Canadian Journal of Criminology, 21, 416-441.

Gendreau, P., Madden, P.G. and Leipciger, M. (1980) Predicting recidivism with social history information and a comparison of their predictive power with psychometric variables. Canadian Journal of Criminology, 22, 328-336.

Gerard, R. (1970) Institutional innovations in juvenile corrections. Federal Probation, 34, 4, 37-44.

Gibbens, T.C.N. (1963) Psychiatric Studies of Borstal Lads. London : Oxford University Press.

Gibbons, D.C. (1965) Changing the Lawbreaker Englewood Cliffs, New Jersey : Prentice-Hall.

Gibbons, D.C. (1975) Offender typologies - two decades later. British Journal of Criminology, 15, 140-156.

Giedt, I.H. and Downing, L. (1961) An extraversion scale for the MMPI. Journal of Clinical Psychology, 17, 159-165.

Glaser, D. (1972) Adult Crime and Social Policy Englewood Cliffs, New Jersey : Prentice-Hall.

Glen, A., Royer, F.L. and Custer, R. A study of MMPI profile types of hospitalized alcoholic veterans. Newsletter for Research in Mental Health and Behavioural Sciences, 15, 53-56.

Glueck, E.T. (1935) Mental retardation and juvenile delinquency. Mental Hygiene, 19, 549-572.

Glueck, S. and Glueck, E.T. (1960) Predicting Delinquency and Crime. Cambridge, Mass : Harvard University Press.

Gnanadesikan, R. and Wilk, M.B. (1969) Data analytic methods in multivariate statistical analysis. In Krishnaiah, P.B. (Ed.). Multivariate Analysis New York : Academic Press.

Gold, M. (1966) Undetected delinquent behaviour. Journal of Research in Crime and Delinquency, 3, 27-46.

Goldman, N. (1963) The differential selection of juvenile offenders for court appearance. Unpublished paper. National Council on Crime and Delinquency.

Gottfredson, D.M. and Ballard, K.B. (1963) Interpersonal maturity measurement by the California Personality Inventory. Report No. 1, Institute for the Study of Crime and Delinquency, Vacaville, California.

Gough, H.G. and Peterson, D.R. (1954) The identification and measurement of predispositional factors in crime and delinquency. Journal of Consulting Psychology, 16, 207-212.

Gower, J.C. (1967) A comparison of some methods of cluster analysis. Biometrics, 23, 623-637.

Gower, J.C. (1971) A general coefficient of similarity and some of its properties. Biometrics, 27, 857-872.

Gower, J.C. (1975) Goodness-of-fit criteria for classification and other patterned structures. In Proceedings of 8th International Conference on Numerical Taxonomy, 38-62.

Grant, M.Q. (1961) Interpersonal maturity level classification, juvenile. Department of the Youth Authority, Sacramento.

Grant, D.J. and Grant, M.Q. (1959) A group dynamics approach to the treatment of nonconformity in the Navy. Annals of the American Academy of Political and Social Science, 322, 126-135.

Grayson, D. (1977) Quay's typology of young offenders. Unpublished paper. Directorate of Psychological Services Report, Series II, No. 54. Home Office, Prison Department.

Green, E. (1961) Judicial Attitudes in Sentencing London : MacMillan

Hall, C.S. and Lindzey, G. (1970) Theories in Personality (2nd edition). New York : Wiley.

Hall Williams, J.E. (1965) Sentencing in transition. In Grygrer, T. et al. (Ed.) Criminology in Transition London : Tavistock.

Hammond, W.H. (1969) The Sentence of the Court : A Handbook for Sentences. London : HMSO.

Hammond, W.H. and Chayen, E. (1963) Persistent Criminals. Home Office Studies in the Causes of Delinquency and the Treatment of Offenders No. 5. London : HMSO.

Hardwick, A. (1972) The effect of 'inside' and 'outside' instructions on PEN and HDHQ scores. Home Office mimeo. Office of the Chief Psychologist, CP Report Series II, No. 6.

Harris, C.M. and Moitra, S.D. (1978) Improved statistical techniques for the measurement of recidivism. Journal of Research in Crime and Delinquency, 15, 194-213.

Hartjen, C.A. and Gibbons, D.C. (1969) An empirical investigation of a criminal typology. Sociology and Social Policy, October, 56-62.

Hartmann, A.A. (1950) Recidivism and intelligence. Journal of Criminal Law, 31, 417-426.

Harwood, J., McGurk, B.J. and Graham, F. (1977) An evaluation of the Acklington regime : an attempt at assessing 'humane containment'. Unpublished paper. Directorate of Psychological Services Report, Series II, No. 51. Home Office, Prison Department.

Hathaway, S.R. and McKinkey, J.C. (1951) The Minnesota Multiphasic Personality Inventory. New York : The Psychological Corporation.

Havel, J. (1965) SIPU : Phase IV. The parole outcome study. Research report No. 13. Department of Corrections, Sacramento, California.

Henderson, M. (1982) An empirical classification of convicted violent offenders. British Journal of Criminology, 22, 1-20.

Heskin, K.J., Bolton, N. and Smith, F.V. (1973) Measuring the attitudes of prisoners by the semantic differential. British Journal of Social and Clinical Psychology, 12, 73-77.

Hewitt, L.E. and Jenkins, R.L. (1946) Fundamental Patterns of Maladjustment : The Dynamics of their Origin. Springfield : State of Illinois.

Hill, G.E. (1936) The intelligence of young male offenders. Journal of Juvenile Research, 20, 20-27.

Hinton, J. and O'Neill, M. (1976) Psychophysiological response profiles : an outline of pilot research leading to possible computer predictions of recidivism. Paper presented at NATO Advanced Study Institute on Computer Prediction in Parole, Cambridge.

Hogarth, J. (1971) Sentencing as a Human Process. Toronto : Toronto University Press.

Hoghughi, M.S. and Forrest, A.R. (1970) Eysenck's theory of criminality. British Journal of Criminology, 10, 240-254.

Home Office (1982) Prison Statistics : England and Wales 1982. London : HMSO.

Hood, R.G. (1962) Sentencing in Magistrates' Courts. London : Stevens.

Hood, R.G. (1966) Homeless Borstal Boys. London : Bell and Sons.

Hood, R.G. (1972) Sentencing the Motoring Offenders. London : Heinemann.

Hood, R.G. and Sparks, R. (1970) Key Issues in Criminology. London : Weidenfield and Nicholson.

Hope, K. (1963) The Structure of Hostility among Normal and Neurotic Persons. Unpublished Ph. D. Thesis. University of London.

Howarth, E., Browne, J.A. and Marceau, R. (1972) An item analysis of Cattell's 16 PF. Canadian Journal of Behavioural Science Review, 4 (i).

Hundleby, J.D., Pawlik, K. and Cattell, R.B. (1965) Personality Factors in Objective Test Devices : A Critical Integration of a Quarter of a Century's Research. San Diego : Knapp.

Hunt, D.E. and McManus, J.M. (1968) Preliminary investigation of boys known to probation. Final report, Syracuse University Youth Development Center.

Inger, S.L. (1976) The Relationship of Perceived Locus of Control to Recidivism Rates Among Inmates of three State Correctional Institutions. Unpublished Ph. D. thesis. Bowling Green State University.

Ismail, J. and Kruper, D. (1975) Use of the PSI to identify problem dental patients. In Lanyon, R.I. (Ed.) Psychological Screening Inventory Research and Development Notes No. 6.

Jaman, D. (1968 a) Parole outcome and time served by first releases committed for robbery and burglary, 1965 releases. California Department of Corrections Measurement Unit.

Jaman, D. (1968 b) Parole outcome for first releases for selected commitment offences by time served before first release. California Department of Corrections Measurement Unit.

Jardine, N. and Sibson, R. (1968) The construction of hierarchic and non-hierarchic classifications. Computer Journal, 11, 117-184.

Jenkins, R.L. (1943) Child relationships and delinquency and crime. In Reckless, W.C. (Ed.). The Etiology of Delinquent and Criminal Behaviour. Social Science Research Council Bulletin No. 50.

Jenkins, R.L. and Glickman, S. (1947) Patterns of personality organization among delinquents. Neurotic Child, 6, 329-339.

Jesness, C.F. (1965) The Fricot Ranch Study. Department of the Youth Authority, California.

Jesness, C.F. (1971 a) The Preston Typology Study : an experiment with differential treatment in an institution. Journal of Research in Crime and Delinquency, 8, 38-52.

Jesness, C.F. (1971 b) Jesness Behaviour Checklist Manual. Palo Alto, California: Consulting Psychologists Press.

Jesness, C.F. (1974) Classifying juvenile offenders : The sequential I-level Classification Manual. Palo Alto, California : Consulting Psychologists Press.

Karpman, B. (1948) The myth of the psychopathic personality. American Journal of Psychiatry, 104, 523-34.

Karpman, B. (1955) Criminal psychodynamics : a platform. Archives of Criminal Psychodynamics, 1, 3-100.

Kassebaum, G., Ward, D. and Wilner, D. (1971) Prison Treatment and Parole Survival. New York : Wiley.

Keppel, G. (1973) Design and Analysis : A Researcher's Handbook. New Jersey : Prentice-Hall.

Kinch, J.W. (1962) Continuities in the study of delinquent types : Journal of Criminal Law, Criminology and Police Science, 53, 323-328.

Kirkpatrick, M.E. (1937) Some significant factors in juvenile recidivism. American Journal of Ortho-Psychiatry, 7, 349-359.

Kraus, J. (1974) A comparison of the corrective effects of probation and detention on male juvenile offenders. British Journal of Criminology, 14, 49-62.

Kretschmer, E. (1925) Physique and Character. Translated Sprott, W.J.H. New York : Harcourt Brace Jovanovich.

Kuiper, F.K. and Fisher, L. (1975) A Monte Carlo comparison of six clustering procedures. Biometrics, 31, 777-783.

Lane, H.A. and Witty, P.A. (1935) The mental ability of delinquent boys. Journal of Juvenile Research, 19, 1-12.

Lanyon, R.I. (1970) Development and validation of a psychological screening inventory. Journal of Consulting and Clinical Psychology, 35, 1-24.

Lanyon, R.I. (1973) Manual of the Psychological Screening Inventory. New York : Research Psychologists Press.

Lanyon, R.I. and Goodstein, L.D. (1971) Personality Assessment. New York : Wiley.

Le Clair, D.P. (1978) Home furlough program effects on recidivism. Criminal Justice and Behaviour, 5, 249-258.

Lee, R. and Olejnick, M. (1981) Professional outreach counselling can help the juvenile probationer : a two-year follow-up study. Personnel and Guidance Journal, 59, 445-449.

Levonian, E. (1961) A statistical analysis of the sixteen personality factor questionnaire. Educational and Psychological Measurement, 21, 589-596.

Lewis, A. (1974) Psychopathic personality : a most elusive category. Psychological Medicine, 4, 133-140.

Lindesmith, A.R. and Dunham, H.W. (1941) Some principles of criminal typology. Social Forces, 19, 307-314.

Lippmann, W. (1922) Public Opinion. New York : Macmillan.

Little, A. (1963) Professor Eysenck's theory of crime : an empirical test on adolescent offenders. British Journal of Criminology, 4, 152-163.

Mack, J.L. (1969) The MMPI and recidivism. Journal of Abnormal Psychology, 74, 612-614.

Mannheim, M. and Wilkins, L.T. (1955) Prediction Methods in Relation to Borstal Training. London : HMSO.

Marriot, F.H.C. (1971) Practical problems in a method of cluster analysis. Biometrics, 27, 501-514.

Martinson, R. (1974) What works - questions and answers about prison reform. The Public Interest, 35, 22-54.

McClintock, F.H. (1961) Attendance Centres. London : Macmillan.

McClintock, F.H. and Avison, N.H. (1968) Crime in England and Wales. London : Heinemann.

McCord, W. and McCord, J. (1964) The Psychopath : An Essay on the Criminal Mind. Princeton, New Jersey : Van Nostrand.

McEwan, A.W. (1981) Could detention centres deter? The self-reported experience of trainees at different stages of their sentence. Unpublished paper. Directorate of Psychological Services. Home Office, Prison Department.

McEwan, A.W. (1983) Eysenck's theory of criminality and the personality types and offences of young delinquents. Personality and Individual Differences, 4, 201-204.

McGregor, R. (1962) Developmental considerations in psychotherapy with children and youth. Paper presented at Annual Conference of American Psychological Association, St Louis.

McGurk, B.J. (1977) A Typology of Homicides. Unpublished Ph. D. Thesis. University of Durham.

McGurk, B.J. (1978) Personality types among 'normal' homicides. British Journal of Criminology, 18, 146-161.

McGurk, B.J. (1981) The validity and utility of a typology of homicides based on Megargee's theory of control. Personality and Individual Differences, 2, 129-136.

McGurk, B.J., Bolton, N. and Smith, M. (1978) Some psychological, educational and criminological variables related to recidivism in delinquent boys. British Journal of Social and Clinical Psychology, 17, 251-254.

McGurk, B.J. and McGurk, R.E. (1979) Personality types among prisoners and prison officers - an investigation of Megargee's theory of control. British Journal of Criminology, 19, 31-49.

McGurk, B.J. and Bolton, N. (1981) A comparison of the Eysenck Personality Questionnaire and the Psychological Screening Inventory in a delinquent sample and a comparison group. Journal of Clinical Psychology, 37, 874-879.

McGurk, B.J., McEwan, A.W. and Graham, F. (1981) Personality types and recidivism among young delinquents. British Journal of Criminology, 21, 159-165.

McGurk, B.J., McEwan, A.W. and McGurk, R.E. (1983) Personality types and recidivism among borstal trainees. Personality and Individual Differences, 4, 165-170.

McGurk, R.E. (1970) Hostility, direction of hostility and delinquency. Unpublished paper. Directorate of Psychological Services C.P. Report, Series II, No. 32. Home Office, Prison Department.

McKay, M.J. and Richardson, H. (1973) Personality differences between one-time and recidivist unwed mothers. Journal of Genetic Psychology, 122, 207-210.

Megargee, E.I. (1977) A new classification system for criminal offenders, I : The need for a new classification system. Criminal Justice and Behaviour, 4, 107-114.

Megargee, E.I. and Bohn, M. (1977) A new classification system for criminal offenders, IV : Empirically determined characteristics of the ten types. Criminal Justice and Behaviour, 4, 149-210.

Megargee, E.I. and Bohn, M.J. (1979) Classifying Criminal Offenders. California : Sage.

Megargee, E.I. and Dorhout, M. (1977) A new classification system for criminal offenders, III : Revision and refinement of the classificatory rules. Criminal Justice and Behaviour, 4, 125-148.

Megargee, E.I. and Golden, R. (1973) Parental attitudes of psychopathic and subcultural delinquents. Criminology, 10, 427-440.

Mehryar, A.H., Khajavi, F. and Hekmat, H. (1975) Comparison of Eysenck's PEN and Lanyon's Psychological Screening Inventory in a group of American students. Journal of Consulting and Clinical Psychology, 43, 13-19.

Merrill, M.A. (1947) Problems of Child Delinquency. Boston : Houghton Mifflin.

Meyer, J. and Megargee, E.I. (1972) Development of an MMPI-based typology of youthful offenders. F.C.I. Research reports 4(2), 1-21.

Miller, F.S. (1978) The applicability of the Megargee MMPI-based offender typology to female offenders. Masters thesis : Florida State University.

Miller, S.J. and Dinitz, S. (1973) Measuring institutional impact : a follow-up. Criminology, 11, 417-426.

Milligan, G.W. (1981) A review of Monte Carlo tests of cluster analysis. Multivariate Behavioural Research, 16, 379-407.

Milligan, G.W. and Isaac, P.D. (1980) The validation of four ultrametric clustering algorithms. Pattern Recognition, 12, 41-50.

Mitchell,H.E. and Byrne, D. (1973) The defendant's dilemna : effects of jurors' attitudes and authoritarianism on judicial decisions. Journal of Personality and Social Psychology, 25, 123-128.

Mojena, R. (1977) Hierarchical grouping methods and stopping rules : an evaluation. Computer Journal, 20, 359-363.

Moos, R.H. (1975) Evaluating Correctional and Community Settings. New York : Wiley.

Mueller, P.F. (1964) Summary of parole outcome findings in stable group counselling. Research Division, California Department of Corrections.

Mueller, P.F. (1965) Advanced release to parole. Research Report No. 20. Research Division, California Department of Corrections.

Nathan, P.E. (1967) Cues, Decisions and Diagnosis New York : Academic Press.

Newton, M. (1971) Reconviction after treatment at Grendon. Unpublished paper. Office of the Chief Psychologist. Home Office, Prison Department.

Nicholson, J.C. (1977) Discriminators of Differences in Recidivistic Behaviours. Unpublished Ph. D. Thesis. School of Education, Georgia State University.

Nie, N.H., Hadlai Hull, C., Jenkins, J.G., Steinbrenner, K. and Bent, D.H. (1975) Stabistical Package for the Social Sciences. New York : McGraw Hill.

Nunnally, J.C. (1962) The analysis of profile data. Psychological Bulletin, 4, 311-319.

Ohlin, L.E. (1951) Selection for Parole. New York : Russell Sage Foundation.

Palmer, T.B. (1967) Relationship between needs of youngsters and characteristics of treaters. Paper presented at National Meeting of Big Brothers of America.

Palmer, T.B. (1974) The youth authority's community treatment project. Federal Probation, 38, 3-14.

Payne, C., McCabe, S.F. and Walker, N. (1974) Predicting offender-patients reconvictions. British Journal of Psychiatry, 125, 60-64.

Peterson, D.R., Quay, H.C. and Cameron, G.R. (1959) Personality and background factors in juvenile delinquency as inferred from questionnaire responces. Journal of Consulting Psychology, 23, 392-399.

Peterson, D.R., Quay, H.C. and Tiffany, T.L. (1961) Personality factors related to juvenile delinquency. Child Development, 32, 355-372.

Philip, A.E. (1973) Assessing punitiveness with the Hostility and Direction of Hostility Questionnaire. British Journal of Psychiatry, 123,435-439.

Piliavin, I. and Briar, S. (1964) Police encounters with juveniles. American Journal of Sociology, 70, 206-214.

Pond, E. (1970) The Los Angeles delinquency control project. Department of the Youth Authority, State of California.

Price, J.B. (1968) Some results on the Maudsley Personality Inventory. British Journal of Criminology, 8, 383-401.

Pulliam, G.P. (1975) Social desirability and the Psychological Screening Inventory. Psychological Reports, 36, 522.

Quay, H.C. (1964 a) Dimensions of personality in delinquent males as inferred from the factor analysis of case history data. Child Development, 35, 479-484.

Quay, H.C. (1964 b) Personality dimensions in delinquent males as inferred from the factor analysis of behaviour ratings. Journal of Research in Crime and Delinquency, 1, 33-37.

Quay, H.C. (1965) Personality and delinquency. In Quay, H.C. (Ed.) Juvenile Delinquency. New York : Litton.

Quay, H.C. (1966) Personality patterns in preadolescent delinquent boys. Educational and Psychological Measurement, 26, 99-110.

Quay, H.C. (1977 a) Measuring dimensions of deviant behaviour : the Behaviour Problem Checklist. Journal of Abnormal and Child Psychology, 5, 277-287.

Quay, H.C. (1977 b) Evaluating correctional treatment : New perspectives and strategies. Criminal Justice and Behaviour, 4, 323-376.

Quay, H.C. and Peterson, D.R. (1958) A brief scale for juvenile delinquency. Journal of Clinical Psychology, 14, 139-142.

Quay, H.C. and Peterson, D.R. (1964) The questionnaire measurement of personality dimensions associated with juvenile delinquency. Unpublished manuscript.

Quay, H.C. and Peterson, D.R. (1975) Manual for the Behaviour Problem Checklist. Unpublished manuscript.

Quay, H.C. and Parsons, L.B. (1970) The differential behavioural classification of the juvenile offender. U.S. Bureau of Prisons, Washington D.C.

Quay, H.C. and Love, C.T. (1977) The effects of a juvenile diversion program on rearrests. Criminal Justice and Behaviour, 4, 377-396.

Raine, A. and Venables, P.H. (1981) Classical conditioning and socialization - a biosocial interaction. Personality and Individual Differences, 2, 273-283.

Reppucci, N.D. and Clingempeel, W.G. (1978) Methodological issues in research with correctional populations. Journal of Consulting and Clinical Psychology, 46, 727-746.

Robin, A.A. (1957) A pilot study as suggested by 'recidivism, psychopathy and personality'. British Journal of Delinquency, 8, 139-141.

Robin, G.D. (1970) The corporate and judicial dispositions of employee thieves. In Smigel, E.O. and Ross, H.L. Crimes Against Bureaucracy. New York : Van Nostrand Deinhold.

Robins, L.N. (1966) Deviant Children Grown Up. Baltimore : Williams and Wilkins.

Roebuck, J.B. (1967) Criminal Typology : The Legalistic, Physical, Constitutional, Hereditary, Psychological, Psychiatric and Sociological Approaches. Springfield, Illinois : Thomas.

Rosenzweig, S. (1934) Types of reaction to frustration. Journal of Abnormal and Social Psychology, 29, 298-300.

Rudnik, M. (1978) Research into the determinants of recidivism. Recidivism, University of Jena, Wissensch. Beitrag, 58-68.

Rushton, J.P. and Chrisjohn, R.D. (1981) Extraversion, neuroticism, psychoticism and self-reported delinquency : evidence from eight separate samples. Personality and Individual Differences, 2, 11-20.

Saville, P. and Blinkhorn, S. (1981) Reliability, homogeneity and the construct validity of Cattell's 16 PF. Personality and Individual Differences, 2, 325-333.

Schrag, C. (1961) A preliminary criminal typology. Pacific Social Review, 4, 11-16.

Schumacher, M. (1974) Predicting subsequent conviction for individual male prison inmates. Australian and New Zealand Journal of Criminology, 7, 22-30.

Scott, P. (1964) Approved school success rates. British Journal of Criminology, 4, 525-556.

Sealy, A.P. (1963) The Social Maturity and Attitudes to Training of Borstal Inmates with and without previous Experience of Approved Schools. Unpublished Ph. D. Thesis, University of London.

Sealy, A.P. and Banks, C. (1971) Social maturity, training experience and recidivism amongst British borstal boys. British Journal of Criminology, 11, 245-264.

Sheldon, W.H., Hartle, M. and McDermott, L. (1949) Varieties of Delinquent Youth. New York : Harper and Row.

Shulman, H.M. (1950) Intelligence and juvenile delinquency. Proceedings of the Second International Congress, Paris, 150, 3, 111-131.

Siegel, S. (1956) Nonparametric Statistics for the Behavioural Sciences. New York : McGraw-Hill.

Singh, U.P. (1974) Personality profiles of recidivists and non-recidivists. Indian Journal of Social Work, 35, 227-232.

Skinner, N.S.F. and Howarth, E. (1973) Cross-media independence of questionnaire and objective test personality factors. Multivariate Behavioural Research, 8, 23-40.

Smith, J. and Lanyon, R.I. (1968) Prediction of juvenile probation violators. Journal of Consulting and Clinical Psychology, 32, 54-58.

Sokal, R.R. and Michener, C.D. (1958) A statistical method for evaluating systematic relationships. University of Kansas Science Bulletin, 38, 1409-1438.

Soothill, K. and Holmes, J. (1981) Finding employment for ex-prisoners : a ten year follow-up study. Howard Journal of Penology and Crime Prevention, 20, 29-36.

Strauss, J.S., Bartko, J.J. and Carpenter, W.T. (1973) The use of clustering techniques for the classification of psychiatric patients. British Journal of Psychiatry, 122, 531-540.

Steer, D. (1973) The elusive conviction. British Journal of Criminology, 13, 373-383.

Sullivan, C.E., Grant, J.D. and Grant, M.Q. (1957) The development of interpersonal maturity - applications to delinquency. Psychiatry, 20, 373-385.

Sullivan, P.C. and Siegel, R. (1972) How police use information to make decisions - an application of decision games. Crime and Delinquency, 18, 253-262.

Sykes, G.M. (1958) The Society of Captives. Princeton, New Jersey : University Press.

Taylor, R.S. (1957) A survey of the first 100 men received at the preventive detention centre, Wandsworth in 1956. Unpublished paper. Psychologists' Monograph No. 1. Office of the Chief Psychologist. Home Office, Prison Department.

Taylor, R.S. (1960) The habitual criminal : observations on some of the men sent to preventive detention. British Journal of Criminology, 1, 21-36.

Thom, R. (1972) Stabilite Structurelle et Morphogenese. New York : Benjamin.

Thomas, C.W. (1973) Prisonization and resocialization? a study of external factors associated with the impact of imprisonment. Journal of Research in Crime and Delinquency, 10, 13-21.

Tittle, C.R. (1974) Prisons and rehabilitation : the inevitability of disfavour. Social Problems, 21, 385-395.

Tizard, J., Sinclair, I. and Clarke, R.V.G. (1975) Varieties of Residential Experience. London : Routledge and Kegan Paul.

Trasler, G. (1979) Delinquency, recidivism and desistance. British Journal of Criminology, 19, 314-322.

Veldman,D.J. (1967) Fortran Programming for the Behavioural Sciences New York : Holt, Rinehart and Winston.

Virkkunen, M. (1976) Parental deprivation and recidivism in juvenile delinquents. British Journal of Criminology, 16, 378-384.

Walker, N. (1965) Crime and Punishment in Great Britain. Edinburgh : Edinburgh University Press.

Walker, N. (1969) Sentencing in a Rational Society. London : Penguin.

Walker, N. (1971) Crimes, Courts and Figures : An Introduction to Criminal Statistics. London : Penguin.

Ward, J.H. (1963) Hierarchical grouping to optimize an objective function. Journal of the American Statistical Association, 58, 236-244.

Warren, M.Q. (1964) Recent findings in the community treatment project. In Correction in the community: alternatives to incarceration. California Board of Corrections Monograph No. 4.

Warren, M.Q. (1969) The case for differential treatment of delinquents. Annals of American Academy of Political and Social Science, 381, 47-59.

Warren, M.Q. (1971) Classification of offenders as an aid to efficient management and effective treatment. Journal of Criminal Law, Criminology and Police Science, 62, 234-258.

Warren, M.Q. and Palmer, T.B. (1966) The community treatment project after five years. California Youth Authority, Sacramento, California.

Warren, M.Q., Neto, V.T., Palmer, T.B. and Turner, J.K. (1966) Community Treatment Project - 5th progress report : an evaluation of community treatment for delinquents. CTP Research report 7, California Youth Authority, Sacramento, California.

Weinberg, S.K. (1952) Society and Personality Disorders. Englewood Cliffs, New Jersey : Prentice-Hall.

Welsh, G.S. (1956) Factor dimensions A and R. In Welsh, G.S. and Dahlstrom, W.G. (Eds.) Basic Readings on the MMPI in Psychology and Medicine. Minneapolis : University of Minneapolis Press.

Werner, J.S., Minkin, N., Minkin, B.L., Fixen, D.C., Phillips, E.L. and Wolf, M.M. (1975) "Intervention package" : an analysis to prepare juvenile delinquents from encounters with police officers. Criminal Justice and Behaviour, 2, 22-27.

West, D.J. (1967) The Young Offender. London : Penguin.

West, D.J. and Farrington, D.P. (1973) Who Becomes Delinquent? London : Heinemann.

White, D., Soo, H.U. and Andriano, K. (1977) Juvenile court records and Markov chains. Their use as aids in identification and treatment of delinquent youth. Law and Human Behaviour, 1, 217-237.

Wiesnet, E. (1978) Family problems of prisoners created by social damage. Z. Strafuollz, Straffaligenhilfe, 27, 212-217.

Wilkins, L.T. (1958) A small comparative study of the results of probation. British Journal of Delinquency, 8, 201-209.

Williams, M. (1970) A study of some aspects of borstal allocation. Unpublished paper. Report No. 33 Office of the Chief Psychologist. Home Office, Prison Department.

Williams, M. (1975) Aspects of the psychology of imprisonment. In McConville, S. (Ed.) The Use of Imprisonment. London : Routledge and Kegan Paul.

Williams, W.T. and Dale, M.B. (1965) Fundamental problems in numerical taxonomy. In Preston, R.D. (Ed.) Advances in Botanical Research. London : Academic Press.

Williams, W.T., Lambert, J.M. and Lance, G.N. (1966) Multivariate methods in plant ecology : similarity analyses and information analyses. Journal of Ecology, 54, 427-445.

Williams, W.T., Lance, G.N., Dale, M.B. and Clifford, H.T. (1971) Controversy concerning the criteria for taxonometric strategies. Computer Journal, 14, 162-165.

Wilson, J.Q. (1968) Varieties of Police Behaviour. Cambridge, Mass : Harvard University Press.

Wilson, G.D. and MacLean, A. (1974) Personality, attitudes and humour preferences of prisoners and controls. Psychological Reports, 34, 847-854.

Winch, R.F. (1947) Heuristic and empirical typologies : a job for factor analysis. American Sociological Review, 12, 68-75.

Wirt, R.D. (1967) MMPI characteristics associated with outcomes in group psychotherapy with prisoners. Paper presented at Second Conference on Recent Developments in the use of the MMPI, Minneapolis, Minnesota.

Wishart, D. (1969) Mode analysis. In Cole, A.J. (Ed.) Numerical Taxonomy. New York : Academic Press.

Wishart, D. (1971) A Generalized Approach to Cluster Analysis. Unpublished Ph. D. Thesis. University of St. Andrews.

Wishart, D. (1978) Clustan : user manual. Edinburgh : Program Library Unit, Edinburgh University.

Woodward, M. (1955) Low Intelligence and Delinquency. London : Institute for the Study and Treatment of Delinquency.

Zarb, J.M. (1978) Correlates of recidivism and social adjustment among training-school delinquents. Canadian Journal of Behavioural Science, 10, 317-328.

Zeeman, E.C., Hall, C.S., Harrison, P.J., Marriage, G.H. and Shapland, P.H. (1976) A model for institutional disturbances. British Journal of Mathematical and Statistical Psychology, 29, 66-80.